CATALOG 2011–12

HARVARD SCHOOL OF PUBLIC HEALTH

Advancing the Public's Health
Through Learning, Discovery,
and Communication

CONTENTS

ACADEMIC CALENDAR, 2011–12

2011

July 5	Independence Day, a holiday (observed)
July 6	Registration for summer programs
July 7	Summer Program in Clinical Effectiveness and Summer Session for Public Health Studies begin
July 7–29	Summer 1 term
August 1–19	Summer 2 term
August 21–27	Professional Communication Seminar
August 28	Fall semester check-in for new students
August 28–30	Orientation for new students
August 31	Fall 1 term begins
September 5	Labor Day, a holiday
October 10	Columbus Day, a holiday
October 28	Fall 1 term ends
October 31	Fall 2 term begins
November 11	Veterans' Day, a holiday
November 24–25	Thanksgiving recess
December 15	Final deadline for application to the doctor of science (SD), doctor of public health (DPH), master of public health (MPH), and most master of science (SM) programs; deadline for application to SM in health care management program in the priority admission cycle.
December 16	Fall 2 term ends
December 19–30	Winter recess

2012

January 3	WinterSession* begins
January 16	Martin Luther King, Jr., Day, a holiday
January 20	WinterSession ends
January 23	Spring 1 term begins
February 15	Final deadline for application to the SM in health care management program
February 20	Presidents' Day, a holiday
March 9	Spring 1 term ends
March 12–16	Spring recess
March 19	Spring 2 term begins
May 11	Spring 2 term ends
May 24	Commencement

* WinterSession is a special academic term at HSPH offering opportunities for creativity and innovation in learning and teaching. Credit and noncredit courses and activities for WinterSession, as well as relevant school and departmental policies, are listed at the following website: http://www.hsph.harvard.edu/administrative-offices/registrar/winter-session.

Welcome to
The Harvard School of Public Health

We invite you to explore the Harvard School of Public Health as you plan for an advanced degree in this dynamic field, which is so vital to the well-being of the world's populations. First among our core values is the precept that health is a fundamental right of every human being. Our overarching mission is to advance the public's health through learning, discovery, and communication. By studying here, you will become part of an unbroken tradition of leadership that extends for nearly a century.

AT THE FOREFRONT

The Harvard School of Public Health, or HSPH, traces its history to the first professional training program in public health in the United States. Founded in 1913, the Harvard-MIT School for Health Officers led to the formal establishment of HSPH in 1922. Since its founding, the school, through its faculty and graduates, has been at the forefront of efforts to stem disease and promote health worldwide.

FAR-REACHING IMPACT

If you have been vaccinated for polio, stepped up your exercise program, never smoked, or been a designated driver, HSPH has affected your life for the better. From its beginning, the school has driven the improvement of the public's length and quality of life.

During the early years the focus was on infectious diseases, deadly workplace exposures, and sanitation – from Alice Hamilton's pioneering studies of lead and mercury poisoning to Thomas Weller's pathbreaking research on the polio virus and Philip Drinker's invention of the iron lung. More recently HSPH has expanded its reach to new areas, including the effects of race, gender, class, and social isolation on health; the reform of national health systems; and cutting-edge research on the biomarkers of disease. Three Nobel Prizes, a Lasker Prize, five MacArthur Awards, presidential citations, and countless other honors attest to the excellence and significance of this work; and six HSPH alumni have led the U.S. Centers for Disease Control and Prevention.

THE HSPH COMMUNITY

- A faculty of nearly 400 members from the diverse fields and disciplines that constitute public health.
- A student population of more than one thousand individuals from throughout the United States and 62 other countries who represent an array of fields and include physicians, health services administrators, epidemiologists, nurses, dentists, lawyers, statisticians, environmental scientists, engineers, research assistants, psychologists, and social workers.
- Enrollment distribution of current students (percentages approximate): 34 percent in the interdisciplinary master of public health program, 26 percent in master of science programs, and 39 percent in doctoral (doctor of science, doctor of public health, or doctor of philosophy) programs.
- Part of the larger community in Boston's Longwood Medical Area, which includes Harvard Medical School, Harvard School of Dental Medicine, and Harvard-affiliated teaching hospitals, as well as Harvard University as a whole.

Dedicated to public health as a field of inquiry and an arena for action to improve the lives of people everywhere.

FROM THE DEAN

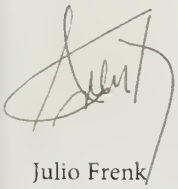
The Harvard School of Public Health (HSPH) has a brilliant history of research and education spanning almost a century, a distinguished faculty of interdisciplinary and collaborative problem solvers, students who bring their talents and their passion for public health here from all parts of the world, a community of staff members who are guided by a strong sense of service, a worldwide network of accomplished alumni, and a diverse group of generous supporters. HSPH also has the good fortune to be part of a renowned university with extensive activities devoted to the improvement of health. The Harvard School of Public Health is a great school within a great university.

However, no institution can remain successful without embracing an agenda of permanent renewal. My own ambition for HSPH is that it should be the first school of public health for the 21st century: first in quality, first in its global reach and influence, and first in its ability to anticipate and innovate.

In quality the school is already a public health leader for the nation and the world. Its intellectual capacity ranges from the molecular biology of vaccines to the epidemiology of cancer; from women's and children's health to nutritional biochemistry; from health care management to human rights. Over the next few years the goal is to expand on our strengths by integrating disciplines and levels of analysis so that we can analyze problems from the genes to the globe. In our endeavors we are guided by the twin values of excellence and relevance. Our strategy is to make major investments in the next generation – to identify and develop new opportunities for students and junior faculty. Since most problems in health, health policy, and health care are global, our perspective is to view local and global health as a continuum. Our opportunity is to work with public health leaders in the translation of new knowledge into policies and programs that can improve the lives of millions in all corners of our interdependent planet.

Our intent not only is to create knowledge through research, but also to re-create knowledge through education and to *translate* knowledge into evidence that can guide health policy and practice. We strive to provide the highest level of education for public health scientists, practitioners, and policymakers. The departments and programs described in this catalog reflect the full scope of the public health enterprise and the expertise of our faculty, ranging across life sciences, quantitative methods, population-level analyses, and social and policy disciplines. The HSPH faculty, students, and staff approach all our programs with a deep sense of dedication and a mutual respect for different ways of contributing to our shared purpose.

In the last century public health has had a compelling effect on the quality and duration of human lives: longer gains in life expectancy were achieved than had been realized throughout the history of humankind. However, we cannot rest on past successes. We invite you to join us in confronting challenges to health as they unfold – and in advancing the solutions that will safeguard our community for the next century.



Julio Frenk

Dean

Overview: Degrees, Programs, and Requirements

TYPES OF DEGREES OFFERED

Master's Degrees

SM (Master of Science)

The School offers the SM designed for candidates with two levels of prior education. In general, the 80-credit and 60-credit degree programs are for students who hold a bachelor's degree, and the 42.5-credit degree is for those with a master's or doctoral degree. Individual degree programs have specific requirements, so please consult the section of this catalog devoted to your program of interest for more information.

MPH (Master of Public Health)

MPH candidates are expected to have an MD, JD, or health-related doctoral or prior master's degree plus experience. See the MPH section of this catalog for specific requirements and eligible degrees.

Doctoral Degrees

DPH (Doctor of Public Health)

SD (Doctor of Science)

PhD (Doctor of Philosophy)

Offered under the aegis of the Harvard Graduate School of Arts and Sciences, these doctoral degrees focus on laboratory-based research.

Master's Degree Programs, 2011–12

SM (80 credits)

Biostatistics

Environmental Health
- Exposure, Epidemiology & Risk
- Occupational Health

Epidemiology

Global Health & Population

Health Policy & Management

Society, Human Development & Health

SM (60 credits)

Biostatistics

SM (42.5 credits)

Biostatistics

Environmental Health
- Exposure, Epidemiology & Risk
- Occupational Health

Epidemiology

Health Care Management

Health Policy & Management

Society, Human Development & Health

Dual Degree
- SM/MSN (Master of Science in Nursing), a maternal and child health program offered with Simmons College

MPH

Schoolwide, interdisciplinary program with concentrations in:
- Clinical Effectiveness
- Global Health
- Health & Social Behavior
- Health Care Management & Policy
- Law & Public Health
- Occupational & Environmental Health
- Quantitative Methods

Dual Degrees
- MD (Doctor of Medicine)/MPH
- JD (Doctor of Law)/MPH; for Harvard Law School students only

Because of the interdisciplinary nature of these degrees, the diploma does not include a department name.

Doctoral Degree Programs, 2011–12

SD

Environmental Health
- Exposure, Epidemiology & Risk
- Occupational Health
- Molecular & Integrative Physiological Sciences

Epidemiology

Global Health & Population

Nutrition

Society, Human Development & Health

DPH

Environmental Health
- Occupational Health

Epidemiology

Global Health & Population

Nutrition

Society, Human Development & Health

Because of the interdisciplinary nature of this degree, the diploma does not include a department name.

PhD

Biostatistics

Biological Sciences in Public Health
Offered in:
- Genetics & Complex Diseases
- Immunology & Infectious Diseases
- Molecular & Integrative Physiological Sciences
- Nutrition

Health Policy

Additional information on all programs, including course requirements and electives, is available at http://hsph.harvard.edu/academics.

The names of the departments generally convey their educational and research specialization. Where concentrations are available within some departments, these are listed in the chart. Interdisciplinary concentrations are described separately on pages 56–57.

Department *areas of interest*, described in this catalog but not listed in the chart, are less formal than concentrations, each providing a direction of study within a degree program.

SCHOOLWIDE DEGREE REQUIREMENTS

All HSPH degree programs require the completion of some coursework intended to ensure basic competencies in public health sciences. Prospective students should consult the descriptions in this catalog for more information about particular programs and their specific admission and degree requirements.

Professional Master's Degrees

These degrees are practice oriented, and in general they comprise the MPH and the 80-credit SM, although there are exceptions.

For all professional master's degree programs, students must:

- Fulfill core requirements in biostatistics, epidemiology, environmental health sciences, health services administration, and social and behavioral sciences.
- Complete a practice experience and a culminating experience, demonstrating integration of public health knowledge.

Research-oriented Master's Degrees

For these programs, most but not all of which are the 42.5-credit SM, students must fulfill the core requirements in biostatistics and epidemiology.

Doctoral Degrees

Students in HSPH doctoral programs must adhere to the doctoral timetable for maintaining satisfactory progress and must fulfill the following requirements:

- Completion of coursework in one major field (20 credits) and two minor fields (10 credits each).
- Completion of courses in introductory epidemiology and intermediate biostatistics.
- Completion of the schoolwide oral qualifying examination, usually by the end of the second year. (Some departments also require a written qualifying examination.)
- Completion of a program of independent and original research in one of the basic disciplines of public health.
- The presentation and submission of this research in a dissertation and the public defense of the dissertation.
- Payment of at least two years of full-time tuition and one year of full-time reduced tuition.

Resources

- Consult degree planners available at each department's website. These online tools provide sample course schedules.
- Download the Student Handbook for detailed information about requirements, timetables, and procedures: http://www.hsph.harvard.edu/academics/student-handbook.
- See page 59 of this catalog for additional application and enrollment information.

Department of Biostatistics

Chair
Victor G. De Gruttola, SM, SM, ScD

Director of Graduate Studies
David Wypij, PhD

Manager of Academic Services
Helen Tillotson-Follweiler
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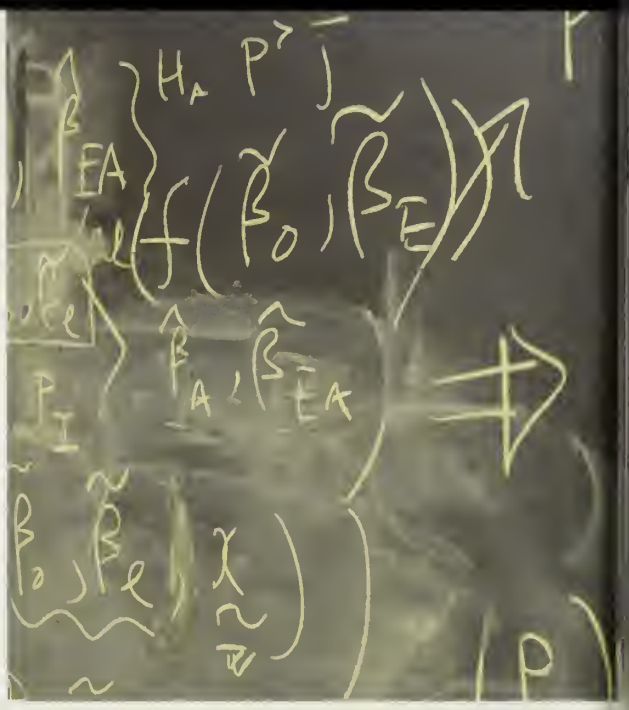


Biostatistics involves the theory and application of statistical science to analyze public health problems and to further biomedical research. The faculty includes leaders in the development of statistical methods for clinical trials and observational studies, studies on the environment, and genomics/genetics. The department's research in statistical methods and its interdisciplinary collaborations provide many opportunities for student participation.

Current departmental research on statistical and computing methods for observational studies and clinical trials includes survival analysis, missing-data problems, and causal inference. Other areas of investigation are environmental research (methods for longitudinal studies, analyses with incomplete data, and meta-analysis); statistical aspects of the study of AIDS and cancer; quantitative problems in health-risk analysis, technology assessment, and clinical decision making; statistical methodology in psychiatric research and in genetic studies; Bayesian statistics; statistical computing; statistical genetics and computational biology; and collaborative research activities with biomedical scientists in other Harvard-affiliated institutions.

DEGREE PROGRAMS IN BIOSTATISTICS

The department offers 80-credit, 60-credit, and 42.5-credit SM programs together with a PhD program that is offered under the aegis of the Harvard Graduate School of Arts and Sciences. Detailed information about requirements and elective options can be found in the departmental handbook.

JARUPON FAH SATHIRAPONGSASUTI, MA

PhD student, Department of Biostatistics

Motivated by the Buddhist ethos of his native Thailand, Fah decided to pursue biostatistics in order to apply his mathematics training in a way that helps others. He chose HSPH because the school is located within what he terms a "Mecca of medical research," where students can learn about discoveries directly from leading researchers long before their results are published.

As a second-year student, Fah is weighing two research areas, both of which integrate genomic and clinical data. One is copy-number variation, in which copied parts of the genome contain mutations that are linked to such conditions as autism. The other looks ahead to the time when individuals' entire genome sequences will be used to inform clinical practice. As Fah points out, biostatistics is becoming increasingly important as research uncovers more and more genes that are implicated in disease – a growing number that now stands at more than one thousand.

Learn more from Fah's video profile: http://hsph.me/student-profiles

These degree programs provide rigorous training in the development of methodology, collaboration, teaching, and consultation on a broad spectrum of health-related problems. The department prepares students for academic and private-sector research careers. Recent graduates have assumed faculty posts at universities, as well as positions in research laboratories, federal government centers, pharmaceutical companies, and research institutes.

The 60-credit SM program is designed to prepare students for applied research positions in hospitals and universities, research organizations, and the pharmaceutical and biotechnology industries.

The master's degree programs are aimed at students seeking a terminal degree, although some students use the master's degree as preparation for PhD studies. Students with strong backgrounds who are ultimately interested in a doctoral degree are encouraged to apply directly to the PhD program.

Departmental Prerequisites

Applicants to the department should have successfully completed calculus through multivariable integration and at least one semester of linear algebra and have knowledge of a programming language. In addition, applicants are strongly encouraged to have completed courses in probability, statistics, advanced calculus, and numerical analysis. Practical knowledge of a statistical computing package – such as SAS, S-plus, R, Stata, or SPSS – is also desirable.

Program Prerequisites and Requirements

All departmental degree requirements are in addition to the schoolwide degree requirements (see page 5).

SM in Biostatistics, 80-credit program

Minimum prerequisite for entrance (in addition to departmental prerequisites): Bachelor's degree or non-U.S. equivalent.

Program requirements: 50 credits in courses from the master's core courses, which includes probability, statistical inference, statistical methods, linear and logistic regression, survival analysis, longitudinal analysis, clinical trials, statistical genetics, computational biology, health decision sciences, and related areas. Students will select an area of interest in either biostatistics or bioinformatics, and satisfy particular requirements for that area. Students also can choose from a variety of elective courses.

SM in Biostatistics, 60-credit program

Minimum prerequisites for entrance (in addition to departmental prerequisites): Bachelor's degree or non-U.S. equivalent in one of the mathematical sciences or an allied field (for example, biology, psychology, or economics).

Program requirements: At least 40 credits of coursework, including 30 credits from the applied biostatistics core curriculum and a minimum of 5 credits from elective courses. Due to the applied emphasis of this program, students devote the remaining credits to completing a collaborative research practicum related to the design, conduct, and analysis of research studies with a focus on data analysis and scientific presentation, which culminates in a written thesis and related oral presentation.

SM in Biostatistics, 42.5-credit program

Minimum prerequisites for entrance (in addition to departmental prerequisites): Bachelor's degree or non-U.S. equivalent in mathematical sciences or a doctorate in a quantitative field. Applicants must have a mathematical and statistical background sufficient to achieve a level of proficiency after one year of study comparable to that attained in the 80-credit program. As courses must be taken out of sequence to complete the program in one year, considerable background in probability and statistical inference is needed.

Program requirements: Essentially the same as the 80-credit program with a minimum of 25 credits from the master's program core courses at an intermediate or advanced level. Students have the flexibility to earn their remaining credits in courses selected with their faculty advisers.

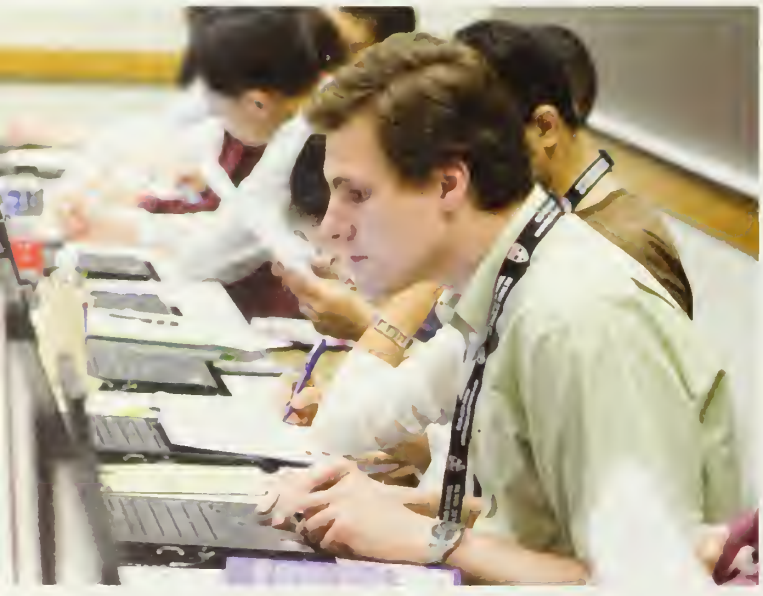
PhD in Biostatistics

The PhD program is designed for those who have demonstrated both interest and ability in scholarly research. Qualified applicants may apply to this program without a prior advanced degree. Please note that Harvard Graduate School of Arts and Sciences application forms must be used. The application deadline is December 15, 2011.

The coursework for the PhD program is built on a 20-credit doctoral core. In addition, 35 credits of advanced biostatistics courses are required; these courses are chosen by the student in consultation with an adviser. Students also must complete a 10-credit cognate requirement (or minor) in a substantive area, such as the biology of cancer or AIDS. Given the increasing reliance of statistical practice on computing technology, one or more courses in statistical computing are recommended. PhD students also must satisfy a consulting requirement and a research ethics requirement.

Funding is available to qualified students pursuing the PhD degree. Most of the funding is through six biostatistics training grants in AIDS, cancer, computational biology, the environment, neurostatistics, and public health training for underrepresented minorities. These traineeships require U.S. citizenship or permanent residency. Other funding (for example, tuition scholarships and teaching and research assistantships) is awarded on a competitive basis to qualified applicants, including international students.

RELATED OFFERING
MPH concentration in quantitative methods, see page 53.



Contact Information

David Wypij, director of graduate studies, Department of Biostatistics, 655 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1056
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Email: biostat_admissions@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/departments/biostatistics

For information on department funding: http://www.hsph.harvard.edu/biostats/welcome/funding.html

For information on postdoctoral fellowships:
Postdoctoral Committee, Department of Biostatistics,
655 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1056
Fax: 617-432-5619
Email: biostat_postdoc@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/departments/biostatistics/fellowship-opportunities

For Reference

Schoolwide degree requirements are listed on page 5.

Detailed application requirements for the SM programs are listed on page 59.

Online application to the PhD program is required. Use the Harvard Graduate School of Arts and Sciences online application form, available at: http://www.gsas.harvard.edu/prospective_students/application_instructions_and_information.php.

DEPARTMENT FACULTY

Please note that some faculty members may be on leave during academic year 2011–12.

Department Chair: Victor G. De Gruttola, SM, SM, SD; Professor of Biostatistics. Methods for clinical and epidemiologic research on AIDS; investigation of causes and consequences of resistance to antiviral drugs; joint models of longitudinal and state changes processes.

Christopher D. Barr, MS, PhD; Assistant Professor of Biostatistics. Spatial and geometric methods; policy applications, environmental applications; open source education.

Rebecca A. Betensky, PhD; Professor of Biostatistics. Survival analysis; cancer genetics; latent class models; genetic epidemiology.

Tianxi Cai, SD; Associate Professor of Biostatistics. Biomarker evaluation; high-dimensional data analysis; model selection and validation; personalized medicine in disease diagnosis, prognosis, and treatment; prediction methods; survival analysis.

Paul J. Catalano, SD; Senior Lecturer on Biostatistics. Repeated measures; multivariate models; dose-response modeling; risk assessment; environmental statistics.

Brent A. Coull, MS, PhD; Professor of Biostatistics. Categorical data analysis; generalized linear mixed models; generalized additive models.

Francesca Dominici, PhD; Professor of Biostatistics and Associate Dean for Information Technology. Bayesian statistics; statistical methods for environmental epidemiology; meta-analysis.

Robert J. Gray, MS, PhD; Professor of Biostatistics. Clinical trials; survival analysis.

Sebastien J-P. A. Haneuse, PhD; Assistant Professor of Biostatistics. Study design for observational studies; methods for selection bias; nonparametric methods for model specification and robust estimation; methods for prediction models.

David P. Harrington, MA, PhD; Professor of Biostatistics. Nonparametric methods for censored data; sequential designs for clinical trials; model fitting and prediction in nearly singular censored data regression models.

Winston Hide, MA, PhD; Associate Professor of Computational Biology and Bioinformatics. Stem cell gene regulation and cancer; computational biology and large-scale data integration; pathogen genomics.

Michael D. Hughes, MSc, PhD; Professor of Biostatistics. Statistical methods in the design, analysis, and reporting of clinical trials; meta-analyses and diagnostic testing.

Curtis Huttenhower, MS, MA, PhD; Assistant Professor of Computational Biology and Bioinformatics. Computational biology; functional genomics and data integration; biological network analysis.

Peter Kraft, MA, MS, PhD; Associate Professor of Epidemiology. Genetic epidemiology of complex diseases, especially cancer.

Nan M. Laird, PhD; Professor of Biostatistics. Longitudinal studies; nonresponse and missing-data methods; discrete data analysis; Bayesian methods.

Christoph Lange, MS, PhD; Associate Professor of Biostatistics. Statistical methods in genetics; generalized linear models; robust statistics; time series analysis.

Cheng Li, PhD; Associate Professor of Biostatistics. Computational biology with application interests in cancer and neuroscience; development of analysis methods and software for high-throughput gene expression and SNP microarray data.

Yi Li, MS, MS, PhD; Associate Professor of Biostatistics. Survival analysis; longitudinal and spatial data analysis.

Liming Liang, PhD; Assistant Professor of Statistical Genetics. Computational and statistical methods required for understanding human genetic variation, with a particular focus on complex human disease.

Xihong Lin, MS, PhD; Professor of Biostatistics. Statistical methods for high-dimensional and correlated data; genomic and proteomic data in basic, population, and clinical sciences; longitudinal data, clustered data, hierarchical data, and spatial data.

Xiaole (Shirley) Liu, PhD; Associate Professor of Biostatistics. Computational genomics, especially sequence analysis; high-throughput sequencing; genome tiling microarray analysis.

Judith J. Lok, MSc, PhD; Assistant Professor of Biostatistics. Causality; time-dependent confounding; counterfactuals; longitudinal data; observational studies; competing risks; HIV; survival analysis.

Franziska Michor, PhD; Associate Professor of Computational Biology. Mathematical modeling of the evolutionary dynamics of cancer; computational biology.

Donna S. Neuberg, MA, MS, SD; Senior Lecturer on Biostatistics. Cancer clinical trials; genetic epidemiology; high-throughput data in cancer; laboratory and animal studies in cancer.

Marcello Pagano, MS, PhD; Professor of Statistical Computing. Surveillance; statistical computing; measurement in the developing world.

Giovanni Parmigiani, PhD; Professor of Biostatistics. Statistical methods in cancer genetics and genomics; medical decision making; Bayesian analysis.

Alkes L. Price, MSE, PhD; Assistant Professor of Statistical Genetics. Population genetics and its relevance to disease mapping.

John Quackenbush, MS, PhD; Professor of Computational Biology and Bioinformatics. Functional genomics; computational biology; mechanisms of cancer development and progression.

James M. Robins, MD; Mitchell L. and Robin LaFoley Dong Professor of Epidemiology. Analytic methods for drawing causal inferences in epidemiology and statistics.

Armin Schwartzman, MS, PhD; Assistant Professor of Biostatistics. Image and signal analysis; modern multivariate statistics; large-scale multiple testing; functional and manifold-valued data; applications in cancer research.

Donna L. Spiegelman, SM, SD; Professor of Epidemiologic Methods. Statistical methods for epidemiologic research; measurement error and misclassification; global epidemiology.

Eric J. Tchetgen Tchetgen, PhD; Associate Professor of Epidemiology. Methods for causal inference and missing-data models; semiparametric statistical methods for high-dimensional data; genetic epidemiology.

Marcia A. Testa, MPH, MPhil, PhD; Senior Lecturer on Biostatistics. Measurement and analysis of patient-reported outcomes; statistical methods in drug development; evaluating public health preparedness.

Tyler J. VanderWeele, MA, AM, PhD; Associate Professor of Epidemiology. Epidemiologic methods; causal inference.

James H. Ware, MS, PhD; Frederick Mosteller Professor of Biostatistics. Design and analysis of longitudinal studies.

Lee-Jen Wei, PhD; Professor of Biostatistics. Design and analysis of clinical trials; repeated measurements analysis; survival analysis.

Milton C. Weinstein, AM, MPP, PhD; Henry J. Kaiser Professor of Health Policy and Management. Medical decision science; cost-effectiveness analysis; health care technology assessment.

Paige L. Williams, MS, PhD; Senior Lecturer on Biostatistics. Design and analysis of HIV/AIDS clinical trials and observational studies; risk assessment; environmental statistics; environmental epidemiology; survival analysis; longitudinal analysis.

David Wypij, ScM, MS, MS, PhD; Senior Lecturer on Biostatistics. Longitudinal and repeated measures models; vaccine efficacy studies; clinical trials; applications in cardiology, psychiatry, and malaria.

Guocheng (GC) Yuan, PhD; Assistant Professor of Computational Biology and Bioinformatics. Computational biology; epigenomics; stem cells; DNA sequence analysis.

Marvin Zelen, MA, PhD; Lemuel Shattuck Research Professor of Statistical Science. Theory and practice of clinical trials; early detection of disease.

University Professor

Gary King, MA, PhD; Albert J. Weatherhead III University Professor. Development and application of empirical methods in social science research; methods for achieving cross-cultural comparability in survey research.

Secondary Appointments

(primary appointments at Harvard Medical School or Harvard Faculty of Arts and Sciences)

Roger B. Davis, MA, SD; Associate Professor in the Department of Biostatistics. Design and analysis of clinical trials; recursive partitioning methods.

Dianne M. Finkelstein, MS, PhD; Professor in the Department of Biostatistics. Survival analysis; clinical trials; epidemiology of cancer and AIDS.

Garrett Fitzmaurice, MSc, MA, SD; Professor in the Department of Biostatistics. Likelihood and nonlikelihood approaches to analyzing multivariate binary outcomes.

Kimberlee Gauvreau, SM, SD; Associate Professor in the Department of Biostatistics. Biostatistical issues in clinical studies in pediatric cardiology; institutional variability in outcomes after congenital heart disease surgery.

Richard D. Gelber, MS, PhD; Professor in the Department of Biostatistics. Design and analysis of clinical trials.

Robert J. Glynn, MA, PhD, SM, SD; Associate Professor in the Department of Biostatistics. Analysis of longitudinal data; nonresponse in sample surveys.

Jun Liu, PhD; Professor in the Department of Biostatistics. Genetics; computational biology; missing data; Bayesian methodology.

Sharon-Lise T. Normand, MSc, PhD; Professor in the Department of Biostatistics. Bayesian inference; graphical models; meta-analysis.

E. John Orav, PhD; Associate Professor in the Department of Biostatistics. Statistical computing and simulation; stochastic modeling; bioassay.

Bernard A. Rosner, MA, PhD; Professor in the Department of Biostatistics. Analysis of clustered binary data; longitudinal data analysis.

Grace Wyshak, SM, PhD; Associate Professor in the Departments of Biostatistics and Global Health and Population. Global and national health, primarily women's health; cancer; osteoporosis; psychiatry; obstetrics; HIV/AIDS.

Adjunct Faculty

Cyrus R. Mehta, SM, PhD. Cytel Software Corporation.

Alexander J. Ozonoff, MA, PhD. Boston University School of Public Health.

Andrea Rotnitzky, MA, PhD. Universidad Torcuato Di Tella, Buenos Aires, Argentina.

Michael A. Stoto, AM, PhD. George Washington University.

Laura Forsberg White, SM, PhD. Boston University School of Public Health.

Department of Environmental Health

Chair

Douglas W. Dockery, SM, SM, SD

Assistant Director of Faculty and Academic Affairs

Barbara Zuckerman

ENVHLTH@hsph.harvard.edu

To fulfill its mission to advance the health of all people around the world through research and training in environmental health, the department emphasizes the role of air, water, the built environment, and the workplace as critical determinants. Faculty members study the pathogenesis and prevention of environmentally produced illnesses and act as catalysts for scientifically based public health advances. Research approaches range from molecular studies to policy evaluation.

The department examines complex problems that require the contributions of many specialties. The faculty, research staff, and students reflect the multidisciplinary nature of the field and include chemists, engineers, epidemiologists, applied mathematicians, physicians, occupational health nurses, physiologists, cell biologists, molecular biologists, and microbiologists.

DEGREE PROGRAMS IN ENVIRONMENTAL HEALTH

Students pursue degrees through one of three concentrations:

- Exposure, epidemiology, and risk (80-credit SM, 42.5-credit SM, SD).
- Occupational health (80-credit SM, 42.5-credit SM, SD, DPH).
- Molecular and integrative physiological sciences (SD; PhD offered under the aegis of the Harvard Graduate School of Arts and Sciences).

EXPOSURE, EPIDEMIOLOGY, AND RISK CONCENTRATION (EER)

Research and educational training in the EER concentration center on the investigation and mitigation of health risks associated with environmental and occupational hazards. These environmental challenges to society are addressed by EER through an interdisciplinary approach that involves the characterization of contaminant sources, hazards, and environmental transport; identification of routes of exposure; investigation of health effects; and the employment of risk assessment, engineering, and management strategies to minimize adverse outcomes.

EER Concentration Requirements

All students in EER acquire core competencies in each of the three domains in which faculty members focus their research:

- **Exposure assessment,** which emphasizes the chemical, physical, microbiological, and engineering aspects of environmental and occupational exposures. Faculty members study the transport and fate of environmental contaminants by measurement and modeling of ambient, indoor, and personal exposures to environmental and workplace contaminants and hazards. They also develop instruments and methods for collecting, analyzing, and assessing the effects of physical, chemical, and biological stressors.
- **Epidemiology,** which focuses on identifying and measuring the influence of environmental factors (physical, chemical, and biological) on human disease in communities to provide scientific evidence for sound environmental and health policies.
- **Risk assessment,** which integrates evidence from exposure assessment, epidemiology, toxicology, and other disciplines to inform policy decisions in the presence of uncertainty. Faculty members are involved in research and training on analytic methods and applications to quantify human health risks, with applications that include evaluations of new products, fuels, water supplies, technologies, remediation strategies, and development of policies to protect both ecological and human health.

Beyond these core competencies, students choose one of the following areas of interest and take additional courses to develop expertise in this chosen area:

Environmental epidemiology This area is for students interested in measuring the influence of environmental factors (physical, chemical, and biological) on human disease in communities to provide scientific evidence for sound environmental and health policies.

Ergonomics and safety Providing a public health and engineering approach to the prevention of work-related injuries and musculoskeletal disorders, this area encompasses exposure assessment, occupational biomechanics, and epidemiology.

Environmental exposure assessment This area prepares students to identify and characterize human and ecological exposures to environmental contaminants, model their fate and transport, and develop strategies to control environmental hazards, allergens, and pathogens.

Occupational hygiene Focused on training, this area addresses the anticipation, identification, evaluation, and control of occupational hazards.

Risk and decision sciences This area provides an integrated education in environmental science, risk analysis, and decision science applied to environmental management.

ELENA AUSTIN, MSc

SD student, Department of Environmental Health

Elena's work in exposure assessment is an outgrowth of her long-term interest in using mathematics to inform health science data, together with work experience at an occupational health consulting firm. Her research focuses on air pollution, and she is working with her adviser, Professor Petros Koutrakis, using cluster analysis techniques to better describe and classify air pollution events. Elena is interested in air pollution because it affects the population at large and travels across borders.

The current challenge in Elena's research is to describe mixtures of pollutants; what distinguishes each mixture; and how they are affected by other factors, such as weather conditions. Eventually, she hopes to apply the findings to health effects research, using such measures as short-term hospital admissions.

A professionally trained violinist as well as a scientist, Elena performs with the Brookline Symphony Orchestra and enjoys Boston's wealth of classical music.

Learn more from Elena's video profile: http://hsph.me/student-profiles

EER Degree Program Prerequisites and Requirements

All concentration requirements are in addition to the schoolwide degree requirements (see page 5). Both master and doctoral students take core courses in human physiology and toxicology, exposure assessment, environmental and occupational epidemiology, and risk assessment. Beyond the general core requirements, the areas of interest have specific course requirements. Advanced courses are oriented toward specific pollutants or media (such as air or water). They may focus on monitoring, modeling, or controlling pollutants; health effects; or management, regulation, and policy.

Many students also take courses at Massachusetts Institute of Technology (MIT) and at other Harvard schools, including the Kennedy School and the Graduate School of Arts and Sciences. In addition, students have opportunities to participate in WinterSession courses in Cyprus through the Cyprus International Institute for Environmental and Public Health at the Cyprus University of Technology (CUT) in Limassol.

SM in Environmental Health, 80-credit program

Minimum prerequisites for entrance: Bachelor's degree or non-U.S. equivalent. Applicants generally have undergraduate degrees and limited work experience. Because of the interdisciplinary nature of the concentration, a broad range of undergraduate or graduate degrees is acceptable. Among these are environmental science, physics, mathematics, biology, chemistry, engineering, geology, meteorology, and decision analysis. Applicants are expected to have evidence of strong quantitative skills. Occasionally, applicants with social science, business, or policy backgrounds are successful if they can demonstrate some academic background in math, chemistry, physics, and biology. At times applicants are accepted on the condition that they complete science and/or math courses.

Program requirements: A set of core courses in the first two semesters, followed by more specialized courses in the later semesters. Within these constraints, students have some flexibility to change their focus in the program.

Graduates of this professional program assume positions in government, in private companies, or in research institutions. In the past few years some graduates have gone to work as scientists in environmental consulting firms, as occupational hygienists, and as academic and government researchers. Some are working for nonprofit community and international organizations, and others have gone on to pursue doctoral degrees. On their personal statements, applicants should clearly state their preferred area of interest within the EER concentration and the ways in which the program will further their careers.

SM in Environmental Health, 42.5-credit program

Minimum prerequisites for entrance: Exceptional credentials, including a postbaccalaureate degree and significant professional experience. This program is designed for midcareer environmental health professionals interested in updating and strengthening their knowledge and technical capabilities.

Program requirements: Academic programs are developed on a case-by-case basis, taking into consideration each student's academic background and professional experience.

SD in Environmental Health

Minimum prerequisites for entrance: Master's degree or non-U.S. equivalent and competence in the requirements for the SM. Applicants to the doctoral program normally have a master's degree in a related science or mathematics field and strong scientific and quantitative skills. Admission into the doctoral program in any area of interest depends on demonstrated competence in the requirements for either of the EER SM programs. Those applying to study occupational hygiene usually have several years of relevant work experience in addition to a master's degree.

Applicants to the doctoral program are strongly encouraged to arrange an interview with faculty members.

Doctoral graduates are qualified for research and teaching positions in schools of public health and other academic institutions, in local and federal agencies, and in the private sector. Recent graduates have taken positions as faculty members at a number of institutions, including Boston University, Emory University, the University of Arizona, the University of Michigan, and the University of Washington; as research scientists with the Environmental Protection Agency, National Institute for Occupational Healthy and Safety (NIOSH), the environmental division of Health Canada, and Taiwan's Institute of Occupational Health and Safety; and as staff scientists with the National Research Council, the Mexican Ministry of Health, and consulting organizations.

Doctoral students interested in a research career in environmental epidemiology are encouraged to consider a dual degree in environmental health and epidemiology (see page 21).

Doctoral candidates serve as teaching assistants and are provided training in proposal development and oral presentation. They also are given the opportunity to present their research in departmental seminars. During the course of their program, doctoral students are encouraged to present papers at scientific conferences.

Depending on the specialty area, doctoral students may be funded either fully or partially through research or training-grant fellowships. National Institutes of Health (NIH) traineeships are restricted to doctoral students who are U.S. citizens or permanent residents. For students specializing in occupational hygiene, tuition support may be obtainable through a NIOSH Education and Research Center Grant available to highly qualified U.S. citizens and permanent residents.

OCCUPATIONAL HEALTH CONCENTRATION

This concentration is designed to train health and safety professionals to recognize and prevent disease and injuries associated with occupational and environmental exposures. The training programs in occupational health are offered through the National Institute for Occupational Safety and Health (NIOSH)–sponsored Harvard Education and Research Center for Occupational Safety and Health (ERC). Graduates are prepared for careers in fields such as occupational and environmental medicine and nursing, occupational hygiene, occupational and/or environmental safety, epidemiologic research, disease and injury surveillance, environmental and/or occupational health policy, and molecular epidemiology.

The occupational health concentration is offered by the environmental and occupational medicine and epidemiology (EOME) program. In the EOME program, the SD or DPH degree may be earned by students who wish to concentrate in disciplines related to occupational health, including injury prevention, occupational epidemiology, or environmental molecular epidemiology. The disciplines of medicine and epidemiology are the focus of the EOME program; depending on the orientation of the student, these disciplines are brought to bear on occupationally and environmentally related exposures. Practicing physicians and nurses can choose courses with a medical orientation; industrial hygienists, safety professionals, and those seeking careers in academia and research can emphasize epidemiology. The academic degree programs are organized so that students can choose courses in both medicine and epidemiology.

Faculty research is focused on a wide variety of exposures and research approaches to identifying the association between exposure and disease or injury. Areas of faculty research include the following:

- Respiratory disease among exposed populations, including indoor and outdoor workers and building occupants.

- Reproductive and chronic disease studies of populations exposed to petrochemicals, heavy metals, and persistent organic compounds.
- Assessment of biological and chemical hazards.
- Occupational and environmental cancers, such as lung, skin, and bladder cancers.
- Biomonitoring and medical surveillance.
- Occupational and environmental health focused on developing countries.
- Occupational health policy and services.
- Environmental genetics, including the development of biochemical, molecular, and genetic markers and their applications in environmental epidemiologic studies.
- Gene-environment interactions.
- Environmental and molecular epidemiology and occupational epidemiology.
- Epidemiology of acute injury and cumulative trauma disorders.
- Ergonomics and workplace injury prevention.

Occupational Health Degree Program Prerequisites and Requirements

All degree requirements are in addition to the schoolwide degree requirements (see page 5).

SM in Environmental Health, 80-credit program

Minimum prerequisites for entrance: Bachelor's degree or non-U.S. equivalent. Applicants normally have a bachelor's degree and advanced training in science, including college-level organic and inorganic chemistry. It generally is expected that students without a prior doctoral degree will wish to enroll in a subsequent doctoral program.

Program requirements: Students take courses in toxicology, pathophysiology, ergonomics and human factors, occupational safety, occupational health policy and administration, the work environment, environmental and occupational epidemiology, the practice of occupational health, advanced biostatistics, and ethics. The program offers areas of interest in ergonomics and safety or occupational health.

SM in Environmental Health, 42.5-credit program

Minimum prerequisites for entrance: PhD or JD degree or non-U.S. equivalent, or a master's degree or non-U.S. equivalent in a related field with significant professional experience.

Program requirements: Students take courses in toxicology, pathophysiology, ergonomics and human factors, occupational safety, occupational health policy and administration, the work environ-

ment, environmental and occupational epidemiology, the practice of occupational health, advanced biostatistics, and ethics. The program offers an area of interest in ergonomics and safety.

SD in Environmental Health/DPH

Minimum prerequisite for admission, SD program: Bachelor's degree or non-U.S. equivalent.

Minimum prerequisites for admission, DPH program: MPH degree (or in progress toward the MPH) and an advanced degree in a basic public health discipline.

Program requirements: Doctoral students complete many of the same courses as those in the SM programs, together with courses in exposure assessment for epidemiology, biomarkers in chronic disease, genetics, and advanced epidemiology. For SD students, areas of interest (the equivalent of majors) include environmental and occupational epidemiology, environmental epidemiology, environmental molecular epidemiology, ergonomics and safety, injury epidemiology, occupational and environmental medicine, and occupational epidemiology.

Doctoral candidates serve as teaching assistants and are provided training in proposal development and oral presentation. They also are given the opportunity to present their research in departmental seminars. During the course of their programs, doctoral students are encouraged to present papers at scientific conferences.

Some financial support may be available for doctoral students who are U.S. citizens or permanent residents through National Institutes of Health (NIH) National Research Service Awards (environmental epidemiology), NIOSH–sponsored ERC or other traineeships, or scholarships.

Occupational and Environmental Medicine Residency/MPH

The Occupational and Environmental Medicine Residency (OEMR) is a two-year preventive medicine program incorporating the MPH degree. It is fully accredited by the Accreditation Council for Graduate Medical Education (ACGME) and leads to the American Board of Preventive Medicine (ABPM) board eligibility in the discipline of occupational medicine.

Minimum prerequisites for entrance: Applicants must be graduates of an approved school of medicine or osteopathy and must have completed (or be enrolled in) at least one year of internship training in an accredited and approved U.S. or Canadian allopathic clinical program; board eligibility or certification in a primary care specialty is preferred. Physicians currently holding positions in the field of occupational safety and health who plan to return to these positions are considered strong candidates for admission.

Residency requirements: The first year consists of academic coursework leading to the MPH degree and four months of clinical experience, including a continuity clinic. The second year is

devoted to the further development and refinement of skills in clinical occupational and environmental medicine and epidemiologic research. During the second year, acquired knowledge and skills are applied to patient and population management and workplace/community problem solving, and at least one publication-quality research project is designed, executed, and documented under faculty supervision. Field experience in both years includes rotations through hospital- and community-based occupational and environmental health clinics. Additional rotation choices are available in corporate medical departments and governmental agencies.

Admission to the residency is a separate process from admission to the MPH degree program. In addition to submitting an electronic Schools of Public Health Application Service (SOPHAS; see page 59) application to the MPH degree program, residency candidates must apply to the residency by sending documents to the program administrator. Please consult the OEMR website for a complete set of prerequisites and application requirements. The OEMR encourages prospective applicants to send a curriculum vitae (CV) listing medical training and experience, research experience, and publications to the program director before beginning the SOPHAS and residency application process. Residency applicants who already have an MPH degree are welcome to apply; they should consult the OEMR website and send a complete CV to the program director or program administrator before beginning the application process. For all contact information, see page 17.

Applicants to the MPH program with a concentration in occupational and environmental health who also are applying to the Occupational and Environmental Medicine Residency must apply for both the degree program and the residency by October 15, 2011, for 2012–13 matriculation. Continuation into the second year of the residency is contingent on having exemplary clinical experience and academic performance in the first year of the program.

Some financial support for residency candidates who are U.S. citizens or permanent residents may be available through traineeships.

MOLECULAR AND INTEGRATIVE PHYSIOLOGICAL SCIENCES CONCENTRATION

Training in molecular and integrative physiological sciences (MIPS) addresses the intersection between basic sciences and environmental exposures, often in the context of global public health. Faculty members focus on three main problems: air pollution, lung infection, and asthma. The theme of pulmonary inflammation spans these foci, as does an interdisciplinary approach bridging biological and physical sciences. Areas of research include biomechanical properties of cells and tissue in normal and inflamed lungs; smooth muscle and airway constriction in asthma; epigenetics and prenatal programming for susceptibility to lung disease; health effects of inhaled pollutants; nanotoxicology; lung infections; and genomic discovery approaches to cell biology and drug discovery. The approaches used are broadly based, ranging from molecular and cell biology to integrated organismic, environmental, and comparative physiology.

MIPS Concentration Requirements

The MIPS training program provides four major areas of interest: bioengineering, physiology, cell and molecular biology, and mechanisms of disease. All students participate in program-wide seminars and interactions that foster exposure to a robust menu of scientific fields, including physics, bioengineering, physiology, biomathematics, cell biology, molecular biology, proteomics and genomics, clinical science, and epidemiology. By working in this rich interdisciplinary environment, students learn many measurement technologies, discover a variety of approaches, and develop mature scientific thinking.

MIPS Degree Requirements

All MIPS degree requirements are in addition to the schoolwide degree requirements (see page 5).

SD in Environmental Health

Minimum prerequisites for entrance: Bachelor's degree or non-U.S. equivalent and demonstrated competence in organic and biological chemistry, general biology, physics, and calculus. Students wishing to study cellular, integrative, or engineering approaches to problems in environmental health or physiology should apply directly to the SD programs in the Department of Environmental Health (see pages 12 and 15).

Program requirements: In consultation with their advisers, students design a program of coursework with their specific objectives in mind, typically organized as areas of interest in bioengineering, cell and molecular biology, mechanisms of disease, or physiology. The program offers a firm foundation in the basic biomedical sciences, as well as in epidemiology and biostatistics, and provides the opportunity for students to engage in laboratory rotations.

The SD program prepares students for research careers in respiratory pathophysiology and mechanisms of disease, cell and molecular biology, or bioengineering. Graduates assume positions as faculty members and research scientists at medical schools, research institutes, and schools of public health. Career opportunities in molecular and integrative physiological sciences as they apply to public health are found in academia and in the biotechnology and pharmaceutical industries.

Most students admitted to the SD program receive a stipend, as well as tuition and health insurance support. Students are encouraged to apply for fellowships from outside sources since certain external fellowships provide higher stipends.

PhD in Biological Sciences in Public Health (Molecular and Integrative Physiological Sciences)

Students wishing to study cellular and molecular biology or pathophysiology as it pertains to major problems in public health may apply to the PhD program offered by the Division of Biological Sciences through the Harvard Graduate School of Arts and Sciences. The PhD program is designed to prepare students for research careers in pathophysiology and mechanisms of disease, respiratory physiology, cell and molecular biology, or bioengineering. For more information about the PhD program, see page 54.

RELATED OFFERINGS

Environmental/occupational epidemiology area of interest, Department of Epidemiology, see page 21.
MPH concentration in occupational and environmental health, see page 53.
Interdisciplinary concentration in Public Health Leadership, see page 57.

Contact Information

For the EER concentration: EER Program Office, HSPH Landmark Center, Box 15677, 401 Park Drive West, Boston, MA 02215 USA
Email: envsci@hsph.harvard.edu
Web: https://webapps.sph.harvard.edu/eer

For the occupational health concentration, training in occupational epidemiology and environmental molecular epidemiology, ERC traineeships, and environmental traineeships:
David Christiani, MD, MPH, SM, Department of Environmental Health, 665 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1260
Fax: 617-432-3441
Email: dchris@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/research/erc

For the Occupational and Environmental Medicine Residency:
Stefanos Kales, MD, MPH, Department of Environmental Health, 665 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-665-1580
Fax: 617-432-0219
Email: skales@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/research/oemr

For research and training in molecular and integrative physiological sciences or the SD program:
Lester Kobzik, MD, Department of Environmental Health, 665 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-2247
Fax: 617-432-0014
Email: lkobzik@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/research/mips/

For Reference

Schoolwide degree requirements for the SM, SD, and DPH programs are listed on page 5.

Detailed application requirements for the SM, SD, and DPH programs are listed on page 59.

Online application to the PhD program in the Division of Biological Sciences is required. Use the Harvard Graduate School of Arts and Sciences online application form, available at: http://www.gsas.harvard.edu/prospective_students/application_instructions_and_information.php.

DEPARTMENT FACULTY

Please note that some faculty members may be on leave during academic year 2011–12.

Department chair: Douglas W. Dockery, SM, SM, SD; Professor of Environmental Epidemiology. Epidemiologic studies of respiratory health effects of air pollution; environmental exposures and lifetime development of respiratory disease.

Andrea Baccarelli, MD, PhD; Mark and Catherine Winkler Associate Professor of Environmental Epigenetics. DNA methylation and histone modifications in human environmental health; microRNAs and environmental exposures; molecular epidemiology; epigenetic determinants of human disease.

Joseph D. Brain, SM, SM, SD; Cecil K. and Philip Drinker Professor of Environmental Physiology. Function and structure of pulmonary macrophages; deposition and clearance of inhaled particles and responses to them; respiratory infection; metal bioavailability.

John Briscoe, PhD; Gordon McKay Professor of the Practice of Environmental Engineering and Professor of the Practice of Environmental Health. Water management, economic development, and health.

James P. Butler, AM, PhD; Senior Lecturer on Physiology. Cell mechanics; soft-tissue lubrication; pulmonary functional imaging with hyperpolarized noble gas MRI; gait kinematics and risk of falling; aerosol transport and deposition mechanisms.

David C. Christiani, MD, MPH, SM; Elkan Blout Professor of Environmental Genetics. Environmental and occupational molecular epidemiology; gene-environment interactions; environmental genetics.

Brent A. Coull, MS, PhD; Professor of Biostatistics. Categorical data analysis; generalized linear mixed models; generalized additive models.

Philip K. Demokritou, MEng, PhD; Assistant Professor of Aerosol Physics. Aerosol science and technology; indoor environmental quality.

Jack T. Dennerlein, SM, PhD; Senior Lecturer on Ergonomics and Safety. Upper-extremity biomechanics during keying; tools in exposure assessment of physical risk factors of VDT workers; product design's effect on upper-extremity biomechanics; prevention of falls from ladders.

John S. Evans, MS, SM, SD; Senior Lecturer on Environmental Science. Risk and decision analysis; characterization of uncertainty; value of information; environment and health in the Middle East; public health impacts of the 1990 invasion and occupation of Kuwait.

Jeffrey J. Fredberg, SMME, ME, PhD; Professor of Bioengineering and Physiology. Biophysical properties of cells and their relationship to airway narrowing in asthma.

Russ B. Hauser, MD, MPH, SD; Frederick Lee Hisaw Professor of Reproductive Physiology. Reproductive and developmental epidemiology; impact of endocrine disruptors on fertility and pregnancy outcomes; contaminants.

Robert F. Herrick, MS, SD; Senior Lecturer on Occupational Hygiene. Exposure assessment; exposure-biomarker relationships; control technologies and intervention strategies.

Petros Koutrakis, MS, PhD; Professor of Environmental Sciences. Air pollution; indoor air quality; air pollution exposure assessment.

Francine Laden, MS, SD; Mark and Catherine Winkler Associate Professor of Environmental Epidemiology. Environmental risk factors for chronic diseases (e.g., cancer and cardiovascular and respiratory diseases); specific interests in exposure assessment and epidemiology of air pollution and applications of GIS.

Chensheng (Alex) Lu, MS, PhD; Mark and Catherine Winkler Assistant Professor of Environmental Exposure Biology. Environmental exposure biology; pesticide exposure and human health; neurodevelopmental and neurobehavioral toxicity in children; cumulative risk assessment for pesticide exposure.

Quan Lu, MS, PhD; Mark and Catherine Winkler Assistant Professor of Lung Biology. Receptor signaling and trafficking; gene-environment interaction; global "loss-of-function" genetic screen.

Stephen N. Rudnick, MS, SM, SD; Lecturer on Occupational Hygiene Engineering. Engineering control of disease transmission via air or fomites; aerosol technology.

Joel D. Schwartz, PhD; Professor of Environmental Epidemiology. Environmental epidemiology; natural history of lung function and disease; cost-benefit analysis; time series analysis; nonparametric smoothing and graphical methods.

James P. Shine, PhD; Senior Lecturer on Aquatic Chemistry. Transport and fate of contaminants in aquatic ecosystems.

Stephanie A. Shore, PhD; Senior Lecturer on Physiology. Obesity and asthma; airway smootn-muscle biology; air pollution and asthma.

Thomas J. Smith, MPH, MS, PhD; Professor of Occupational Hygiene. Exposure assessment for epidemiologic studies; environmental chemical hazards; biomarkers of exposure; hazards of diesel exhaust exposure.

Frank E. Speizer, MD; Professor of Environmental Science. Health effects of air pollution; cancer and cardiovascular and pulmonary diseases and healthy aging.

John D. Spengler, PhD, SM; Akira Yamaguchi Professor of Environmental Health and Human Habitation. Indoor air quality; health risk assessment; sustainable design; healthy communities.

Elsie M. Sunderland, PhD; Mark and Catherine Winkler Assistant Professor of Aquatic Science. Integrated air and water quality modeling; marine chemistry; exposure and risk analysis, global climate and biogeochemical cycles.

Daniel J. Tschumperlin, MS, PhD; Associate Professor of Bioengineering and Airway Biology. Asthma, pulmonary fibrosis, and other environmentally related lung diseases; remodeling of the lung; transduction of physical forces at a cellular and molecular level.

Marc G. Weisskopf, PhD, SM, SD; Mark and Catherine Winkler Assistant Professor of Environmental and Occupational Epidemiology. Epidemiology of neurological disease with an emphasis on environmental exposures; environmental effects on brain physiology and neurological function (e.g., cognitive function and psychiatric symptoms).

Secondary Appointments

(primary appointments at Harvard Medical School)

Elisha H. Atkins, MD, SM; Assistant Professor in the Department of Environmental Health. Hospital-worker health and safety.

David C. Bellinger, PhD, SM; Professor in the Department of Environmental Health. Developmental impact of early metabolic and chemical insults to the nervous system; neuropsychological toxicology.

Augustine M. K. Choi, MD; Professor in the Department of Environmental Health. Oxidative stress and lung injury; signal transduction and gene regulation; cell death and autophagy; regulation and physiologic function of gaseous molecule carbon monoxide.

Jeffrey M. Drazen, MD; Professor in the Department of Environmental Health. Pulmonary and respiratory pharmacology; mediators of immediate hypersensitivity; mucus regulation and expression in chronic bronchitis.

John J. Godleski, MD; Associate Professor in the Department of Environmental Health. Experimental models of normal and pathologic responses to inhaled particles.

Diane R. Gold, MD, MPH; Associate Professor in the Department of Environmental Health. Influence of early-life environmental exposures on allergy and asthma development; cardiovascular and pulmonary effects of air pollution.

Rose H. Goldman, MD, MPH, SM; Associate Professor in the Department of Environmental Health. Metal poisoning and toxicity; neurotoxicity; repetitive strain injuries; medical and public health education.

Stefanos (Stephen) N. Kales, MD, MPH; Associate Professor in the Department of Environmental Health. Firefighters, emergency responders, environmental/workplace exposures, and metabolic health effects; chemical emergencies; heavy metals; traditional Indian medications.

Jeffrey N. Katz, SM, MD; Professor in the Departments of Epidemiology and Environmental Health. Clinical policy relating to noninflammatory musculoskeletal conditions; health policy questions; back pain and upper-extremity disorders.

Lester Kobzik, MD; Professor in the Department of Environmental Health. Lung defenses against inhaled particles and pathogens; pulmonary inflammation and pathology.

Susan A. Korrick, MD, MPH; Assistant Professor in the Department of Environmental Health. Developmental and reproductive toxicities of organochlorines, pesticides, plasticizers, and metals; chronic toxicities of chemical insults in susceptible populations (infants and aging adults).

Edward A. Nardell, MD; Associate Professor in the Departments of Environmental Health and Immunology and Infectious Diseases. Airborne transmission and infection control of *Mycobacterium tuberculosis;* air disinfection with ultraviolet irradiation.

Richard L. Verrier, PhD; Associate Professor in the Department of Environmental Health. Neural triggers of sudden cardiac death; cardiac electrophysiology; T-wave alternans; coronary hemodynamic function; novel delivery systems for antiarrhythmic therapy.

Scott T. Weiss, MD, SM; Professor in the Department of Environmental Health. Natural history of chronic lung disease; epidemiology of asthma and hypertension; cardiovascular, occupational, environmental, and genetic epidemiology.

Robert O. Wright, MD, MPH; Associate Professor in the Department of Environmental Health. Pediatric environmental health; gene-environment interactions; psychosocial factors as modifiers of chemical neurotoxicants.

Rosalind J. Wright, MD, MPH; Associate Professor in the Department of Environmental Health. Stress and health; asthma disparities; social determinants of lung disease.

Adjunct Faculty

Panagiotis K. Behrakis, MD, PhD. School of Medicine, Athens University, Greece.

Costas A. Christophi, MS, PhD. Cyprus International Institute for the Environment and Public Health.

Ellen A. Eisen, SM, SM, SD. University of California, Berkeley.

Adrienne Ettinger, ScD. Yale School of Public Health.

Philippe Grandjean, MD, DMSc. Odense University, Denmark.

Steven R. Hanna, MS, PhD. Hanna Consultants.

Philip J. Landrigan, MD, MSc. Mount Sinai School of Medicine.

Tom B. Leamon, MSc, MSc, PhD. Liberty Mutual Research Institute for Safety.

Jonathan I. Levy, SD. Boston University.

David MacIntosh, MS, ScD. Environmental Health and Engineering, Inc.

Edward F. Maher, MS, SD. Dade Moeller & Associates.

Konstantinos Makris, PhD. Cyprus International Institute for the Environment and Public Health.

Donald K. Milton, MD, MPH, DPH. University of Massachusetts, Lowell.

Joseph P. Mizgerd, SD. Boston University.

Gregory Norris, MS, PhD. Sylvatica.

Melissa Perry, MHS, ScD. George Washington University, School of Public Health and Health Services

Annette Peters, SM, PhD. Institute of Epidemiology, Neuherberg, Germany.

Christine A. Rogers, PhD. University of Massachusetts, Amherst.

Nancy C. Sieber, PhD. Consultant.

Helen H. Suh, SM, SD. National Opinion Research Center, University of Chicago.

Gregory R. Wagner, MD. National Institute for Occupational Safety and Health.

David H. Wegman, MD, SM. University of Massachusetts, Lowell.

Pierre A. Zalloua, MA, PhD. Lebanese American University.

Chair
Michelle A. Williams, ScD

Assistant Director, Graduate Studies
John Paulson
jpaulson@hsph.harvard.edu
617-432-1055

Department of Epidemiology

Epidemiology – the study of the frequency, distribution, and determinants of disease in humans – is a fundamental science of public health. Epidemiologists use many approaches, but the ultimate aim of epidemiologic research is the prevention or effective control of human disease.

The Department of Epidemiology has a long tradition of teaching and research in a wide variety of areas that include, but are not limited to, the epidemiology of cancer, cardiovascular and other chronic diseases, and infectious diseases and epidemiologic methodology. Current research in the department involves the role of infections in the etiology of cancer; the connection between diet and risk of cancer, cardiovascular disease, and other major chronic diseases; the relationship between exposure to chemicals in the workplace and the development of cancer; the epidemiology of infectious disease; factors in early life predisposing individuals to chronic diseases; case identification and risk factors in mental disorders; health effects of drugs, vaccines, and medical devices; and causes of human infertility.

DEGREE PROGRAMS IN EPIDEMIOLOGY

The department offers both an 80-credit and a 42.5-credit SM program, together with a doctoral program leading to either an SD or a DPH degree.

Departmental Requirements

All departmental degree requirements are in addition to the schoolwide degree requirements (see page 5).

Students in all departmental degree programs choose from among 12 areas of interest:

Cancer epidemiology and cancer prevention In addition to research methodology, the curriculum in this area includes courses on the biology and genetics of cancer; the basic concepts and issues of cancer epidemiology; the roles of lifestyle factors, such as diet and physical activity; environmental and occupational exposures in the etiology of cancer; the integration of biomarkers (e.g., plasma, genetic, and tumor markers) into research; the prevention of cancer; and research methods. Research opportunities for students include a large number of ongoing cohort and case-control studies conducted within the department or at associated institutions and in conjunction with the Dana-Farber/Harvard Cancer Center.

Cardiovascular epidemiology This area provides training in research methodology and the epidemiology of cardiovascular diseases. Doctoral students conduct research in a substantive or methodological area related to cardiovascular epidemiology. Research opportunities for graduate and postdoctoral students include a broad area of topics, including the role of diet, genetics, plasma markers, lifestyle characteristics, clinical interventions,

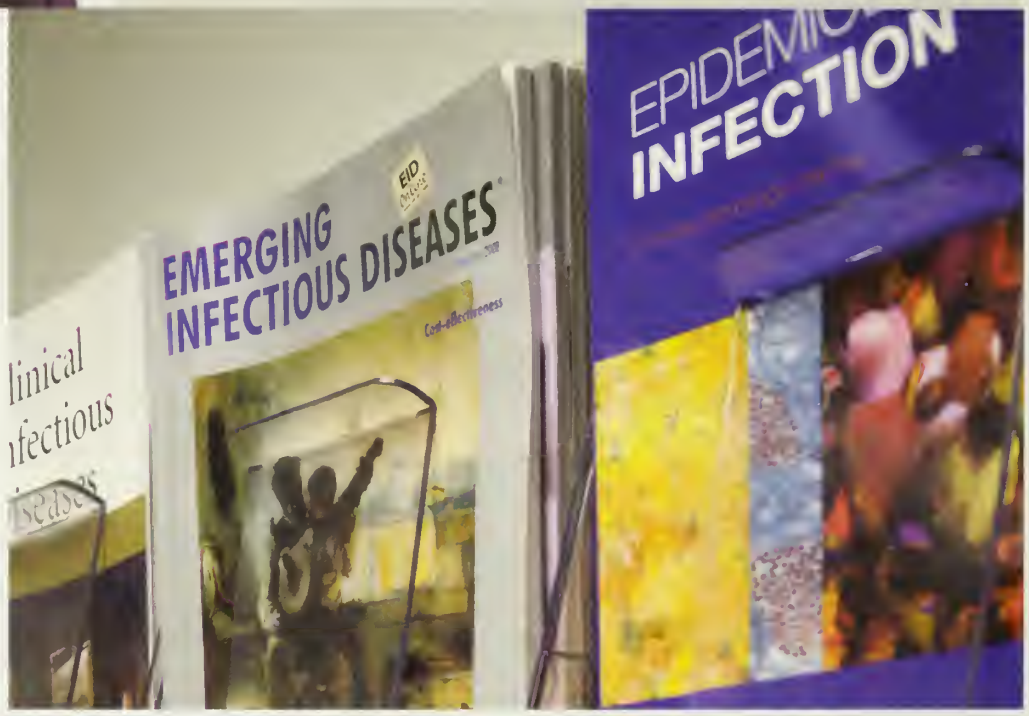
VICTORIA MACIAS

SM student, Department of Epidemiology; interdisciplinary concentration in obesity epidemiology and prevention

A graduate degree in epidemiology with a focus on obesity was a natural next step for Victoria. She earned two concurrent bachelor's degrees – in natural sciences and in Spanish language, literature, and cultures – and wrote an undergraduate honors thesis on the comparative prevalence of obesity in Hispanic and non-Hispanic populations in the United States. She believes that culture, tradition, and values – together with environmental limitations – are highly significant in establishing health habits.

During the summer between her two years at HSPH, Victoria will be completing an internship in Brazil with the Nutrition and Global Health Program of the Harvard Global Health Initiative. She will conduct fieldwork in the Amazon to investigate obesity and nutritional exposures under the direction of a faculty member at the University of São Paulo School of Public Health who has close ties to HSPH. Victoria plans to use the resulting data in her master's thesis.

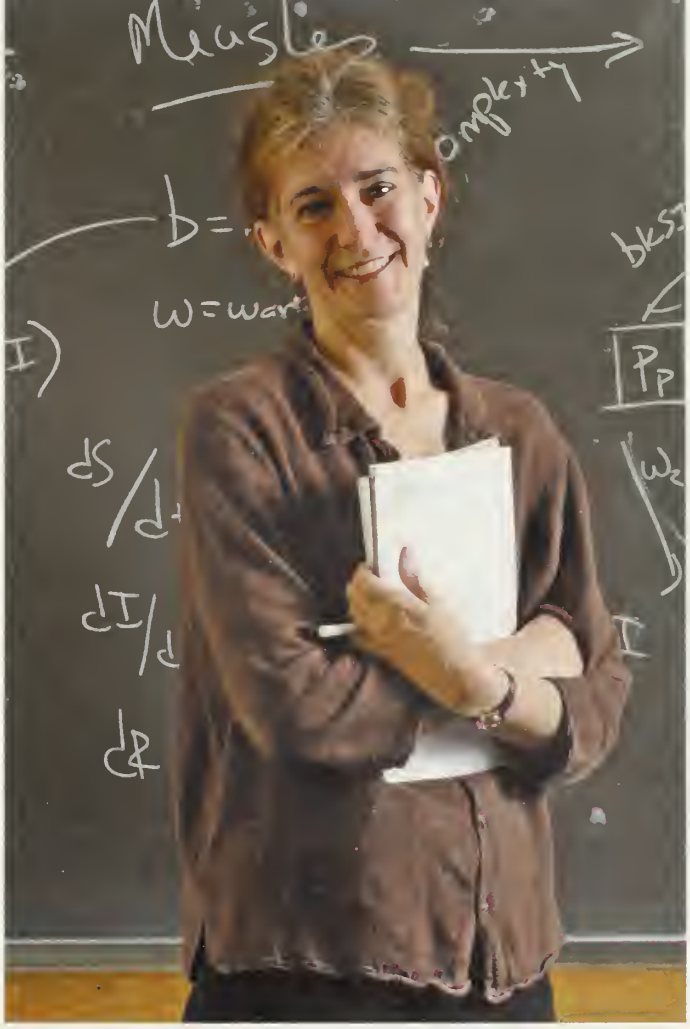
Learn more from Victoria's video profile: http://hsph.me/student-profiles



and environmental predictors of primary and secondary onset of cardiovascular disease. Trainees have the opportunity to work with several large ongoing cohort and case-crossover studies and to interact with other trainees and investigators through forums and other activities organized by the program in cardiovascular epidemiology centered at HSPH.

Clinical epidemiology The clinical epidemiology area is designed primarily for clinicians and other health care professionals in the 42.5-credit SM program who wish to develop the quantitative skills needed for clinical research. Students take core courses in epidemiology and biostatistics to develop basic skills in study design and analysis that will allow them to examine clinical questions related to the diagnosis and treatment of disease. Additional courses in epidemiology and courses offered by other departments address related topics of potential interest, such as health status and quality-of-life measurement, decision analysis, cost-effectiveness analysis, health services research, and quality improvement of health care.

Though the appropriate content for this area may be covered by taking courses offered during the regular academic year (fall and spring semesters), requirements for the 42.5-credit SM degree in epidemiology also may be partially fulfilled by taking courses offered through the Summer Program in Clinical Effectiveness and the Summer Session for Public Health Studies. In this schedule option, students begin their program by taking a core set of courses during an initial summer period. They complete the SM program by taking advanced courses during the regular academic year and, if desired, during two or more summer periods. Alternatively, students can satisfy the requirements for the 42.5-credit SM degree by taking courses during summer periods and completing a supervised research project. The content of this project typically entails the design and implementation of a clinical study, the analysis of the resulting data, and the creation of a manuscript suitable for publication. An outline for this project must be submitted at the time of application.



Environmental/occupational epidemiology This area is closely associated with the concentrations in exposure, epidemiology, and risk and in occupational health in the Department of Environmental Health. Students take courses in epidemiology, environmental health, occupational health, biostatistics, toxicology, genetics, and environmental exposure assessment. Doctoral students conduct research in a substantive or methodological area related to environmental or occupational health. Research emphases include the relationships between environmental and occupational exposures and cancer, children's health, cardiopulmonary disease, neurodegenerative disease, reproductive health, and gene-environment interactions.

Epidemiologic methods Study in this area provides training in the development and application of new methods in epidemiologic research. Students learn to use and justify classical epidemiologic methods in study design, data analysis, and interpretation of results. Students also receive training in the biostatistical areas most relevant to epidemiologic research. Recent innovations in epidemiologic methodology are introduced through advanced courses and tutorials. Doctoral students conduct research with faculty members in the development of new methodologies and in novel applications of existing methodologies. Those enrolling in this area of interest ordinarily have completed four semesters of college calculus and one semester of linear algebra. Students have an opportunity for collaboration with researchers working on causal inference in epidemiology and allied sciences.

Epidemiology of aging This area is geared toward those interested in the diseases and conditions, as well as research methods, specific to older populations. Social and cultural aspects of health in older persons also are covered. Core courses focus on the epidemiologic aspects of the study of aging and include topics in biology, statistics, and other relevant fields. Numerous research opportunities on a wide range of issues – including neurological diseases, osteoporosis, incontinence, and others – are available in the department and also in the Department of Nutrition, Channing Laboratory, the Division of Preventive Medicine at Brigham and Women's Hospital, and Hebrew SeniorLife.

Infectious diseases Research in this area focuses on the biological and dynamic features of infectious diseases, with emphasis on the use of epidemiologic approaches to study the social, behavioral, and biological determinants of infectious disease emergence, transmission, pathogenesis, and immunity. Courses in the department cover the common features of communicable diseases and their dynamics; methods for the analysis of transmission dynamics; and advanced topics in the epidemiology of certain specific infectious diseases, especially HIV. Courses in other departments provide introductions to the epidemiology of additional specific infectious diseases and to additional relevant methodologies, including spatial and time series analysis. Students in this area ordinarily join the interdisciplinary concentration in the epidemiology of infectious disease.

Molecular/genetic epidemiology This area introduces students to the application of molecular and genetic methods in epidemiology. These methods may be useful as measures of exposure, disease susceptibility, or disease outcome. Training encompasses family-based association methods, genome-wide association studies to identify the chromosomal localization of genes associated with disease, and fine mapping and identification of these genes. Population-based studies correlate variation in genes with disease risk and prognosis and assess gene-environment interactions. Relevant courses explore the genetic epidemiology of complex diseases, including cancer, cardiovascular disease, diabetes, psychiatric illnesses, Alzheimer's disease, and asthma, as well as individual variation in drug response (pharmacogenomics). Students can collaborate with the HSPH Department of Environmental Health, the Channing Laboratory, the Dana-Farber Cancer Institute, and other research groups.

Neuropsychiatric epidemiology Within this increasingly integrated area of interest, students typically elect one of two focal areas:

- *Neuroepidemiology,* which provides training in research methodology and the epidemiology of neurological diseases. Current research emphasizes the roles of diet, infections, and environmental exposures in the etiology of neurodegenerative

diseases – such as multiple sclerosis, Parkinson's disease, and amyotrophic lateral sclerosis – and it integrates biomarkers and genetic factors. Doctoral students conduct research in a substantive or methodological area related to neuroepidemiology.

- *Psychiatric epidemiology,* which introduces students to concepts and methods for studying the genetic and psychosocial factors that relate to the prevalence, incidence, and outcome of different types of psychiatric illnesses. Emphasis is given to issues of reliability and validity in studying such disorders among children, adolescents, and adults. The curriculum consists of six specialized courses, as well as related courses offered in the HSPH Departments of Epidemiology; Biostatistics; and Society, Human Development, and Health. A wide range of research opportunities is available, particularly in psychiatric genetics, mental health services, pharmacoepidemiology, clinical trials, prevention, and community and cross-cultural studies.

Nutritional epidemiology Through courses in the Departments of Epidemiology and Nutrition, students in this area learn methods of nutritional assessment and their related strengths and weaknesses. Students also receive advanced training in the nutritional determinants of disease and in methods for analysis specific to research in nutritional epidemiology. They can conduct research within several large, prospective ongoing studies at HSPH and Harvard Medical School, including an examination of dietary factors in relation to cardiovascular disease, cancer, and other chronic diseases; a study of the interactions between nutritional and genetic determinants of disease; and the assessment of nutritional supplementation in relation to infectious agents and malnutrition.

Pharmacoepidemiology This area focuses on the determinants of both unintended and expected effects of drugs, vaccines, biologics, medical procedures, and medical devices. Patterns of utilization, cost-benefit and risk-benefit analyses, and investigation of the distribution of diseases possibly amenable to medical intervention represent important secondary themes. The department offers courses in pharmacoepidemiology and a variety of ongoing research projects. Relevant courses elsewhere in the school cover such areas as clinical trials, meta-analysis, drug regulatory affairs, decision analysis, and health services research. Students in pharmacoepidemiology have the opportunity to attend courses and congresses outside the school and are encouraged to undertake internships in regulatory agencies or pharmaceutical and biotechnology companies. Students ordinarily have a prior degree in medicine or pharmacy. Those without such a degree are expected to acquire substantially equivalent expertise in areas related to their research.

Reproductive, perinatal, and pediatric epidemiology Research in this area centers on the determinants and consequences of reproduction, including women's health and male infertility. Students can explore pubertal development, gynecologic disorders, sexually transmitted infections, the menstrual cycle, menopause, fertility, conception, assisted reproductive technologies, and pregnancy as endpoints or as factors influencing disease outcomes. The Obstetrics and Gynecology Epidemiology Center, based at Brigham and Women's Hospital, offers the opportunity to gain experience in data collection and analysis of large-scale population- and clinical-based epidemiologic studies. Students may collaborate with faculty members at HSPH and Harvard Medical School and also have the opportunity to pursue gynecologic and reproductive health research at the many resources available in the area, including the Channing Laboratory, Harvard Pilgrim Health Care, and the Division of Preventive Medicine and Connors Center for Women's Health and Gender Biology at Brigham and Women's Hospital. Students are encouraged and given guidance on how to submit their own research proposals for private or federal funding.

Program Prerequisites and Requirements

SM in Epidemiology, 80-credit program

Minimum prerequisites for entrance: Bachelor's degree or non-U.S. equivalent and a strong background in biology and mathematics.

Program requirements: Through coursework students gain essential skills in epidemiology, quantitative methods, and computing as well as studying basic medical sciences and the biological aspects of public health problems. In addition students are required to complete a master's thesis resulting in a publishable manuscript or grant application. Graduates either continue on to a doctoral degree or take positions as professional epidemiologists in such settings as universities, hospitals, public health agencies, and private companies.

SM in Epidemiology, 42.5-credit program

Minimum prerequisite for entrance: A medical degree or master's-level background in biology.

Program requirements: Required courses cover topics in epidemiologic methods and biostatistics. Additional elective credits may be earned in areas of special interest and, for students in the Summer Only degree program, include supervised research. Students acquire basic skills in epidemiology, quantitative methods, and computing in preparation for research or academic careers. Graduates have taken positions as researchers in university and hospital settings and as epidemiologists for public health agencies and private companies.

SD in Epidemiology/DPH

Minimum prerequisites for entrance, SD program: Bachelor's degree or non-U.S. equivalent and a strong background in biology and mathematics. For these individuals, the degree generally takes four to five years to complete. Candidates with an HSPH master's degree may complete the program in three years.

Minimum prerequisites for entrance, DPH program: MPH degree (or in progress toward an MPH) and an advanced degree in a basic public health discipline.

RELATED OFFERINGS

Exposure, epidemiology, and risk and occupational health concentrations, Department of Environmental Health, see pages 11 and 13.
Interdisciplinary concentration in maternal and child health/children, youth, and families, see page 56.
Interdisciplinary concentration in obesity epidemiology and prevention, see page 57.
Interdisciplinary concentration in epidemiology of infectious disease, see page 56.
Interdisciplinary concentration in women, gender, and health, see page 56.
Summer Program in Clinical Effectiveness, see page 58.

Degree requirements, SD and DPH: Normally, most of the first two years is devoted to coursework. Course requirements for the SD and DPH are identical and provide for advanced work in epidemiologic methods and biostatistics. Ten credits also are required in substantive courses offered by the department. Of the two minors required, one must be in advanced biostatistics.

Funding may be available for students enrolled in the doctoral programs. Sources of funding support for doctoral students, in addition to tuition and stipend awards granted directly by the school or the Department of Epidemiology, include the National Cancer Institute, the National Institute of Environmental Health Sciences, the Food and Drug Administration, and the National Institute of Allergy and Infectious Diseases. For U.S. citizens and permanent residents interested in cardiovascular disease or aging, research traineeships may be available through Harvard Medical School. The National Institute on Aging also offers research traineeships for doctoral students, postdoctoral fellows, and physicians engaged in postdoctoral training.

The doctoral programs are designed for students who plan careers in epidemiologic research or teaching or for those who aspire to leadership roles in the health professions. Recent graduates are working in major universities, medical schools, and research institutes. They also serve as epidemiologists for the National Cancer Institute, Centers for Disease Control and Prevention, other domestic and international governmental institutions, and private industry.

Contact Information

Assistant director of graduate studies, Department of Epidemiology, 677 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1055
Fax: 617-566-7805
Web: http://www.hsph.harvard.edu/departments/epidemiology

For Reference

Schoolwide degree requirements are listed on page 5.

Detailed application requirements are listed on page 59.

DEPARTMENT FACULTY

Please note that some faculty members may be on leave during academic year 2011–12

Department chair: Michelle A. Williams, ScD, Stephen B. Kay Professor of Public Health. Reproductive and perinatal epidemiology; molecular epidemiology of medical complications of pregnancy; and global health.

Hans-Olov Adami, MD, PhD; Professor of Epidemiology. Cancer epidemiology; global health; women's health; prostate cancer, renal cell cancer; breast cancer.

Alberto Ascherio, MD, MPH, DPH; Professor of Epidemiology and Nutrition. Nutritional epidemiology; epidemiology of neurological diseases.

Andrea Baccarelli, MD, PhD; Mark and Catherine Winkler Associate Professor of Environmental Epigenetics. DNA methylation and histone modifications in human environmental health; microRNAs and environmental exposures; molecular epidemiology; epigenetic determinants of human disease.

Lisa F. Berkman, MS, PhD; Thomas D. Cabot Professor of Public Policy and of Epidemiology. Social epidemiology; population health; epidemiology of aging.

Caroline O. Buckee, MSc, DPhil; Assistant Professor of Epidemiology. Population biology of genetically diverse pathogens; evolutionary dynamics and epidemiology of the human malaria parasite; host-pathogen coevolution.

Jorge E. Chavarro, MD, SD; Assistant Professor of Nutrition and Epidemiology. Influence of nutritional and lifestyle factors on reproductive health, in particular, fertility, pregnancy complications, and reproductive cancers.

David C. Christiani, MD, MPH, SM; Elkan Blout Professor of Environmental Genetics. Environmental and occupational molecular epidemiology; gene-environment interactions; environmental genetics.

E. Francis Cook, MA, SM, SD; Professor of Epidemiology. Epidemiologic methods; clinical epidemiology.

Douglas W. Dockery, SM, SM, SD; Professor of Environmental Epidemiology. Epidemiologic studies of respiratory health effects of air pollution; environmental exposures and lifetime development of respiratory disease.

Wafaie W. Fawzi, MBBS, MPH, SM, DPH; Richard Saltonstall Professor of Population Sciences, and Professor of Nutrition, Epidemiology, and Global Health. Etiologies of infectious diseases including AIDS, TB, and malaria,with emphasis on nutritional causes; maternal, neonatal, and child health.

Stephen E. Gilman, SM, SD; Associate Professor of Society, Human Development, and Health. Social epidemiology of psychiatric disorders; health disparities and the life course.

Edward L. Giovannucci, MD, MPH, SD; Professor of Nutrition and Epidemiology. Etiologies of cancer with emphasis on dietary causes, particularly for prostate and colorectal cancers; methodologies to measure dietary factors in epidemiologic studies.

William P. Hanage, PhD; Associate Professor of Epidemiology. Molecular epidemiology and population genetics of bacterial pathogens; evolutionary biology of infectious agents; *Streptococcus pneumoniae*; theory of bacterial species and speciation.

Russ B. Hauser, MD, MPH, SD; Frederick Lee Hisaw Professor of Reproductive Physiology. Reproductive and developmental epidemiology; impact of endocrine disruptors on fertility and pregnancy outcomes; contaminants.

Miguel A. Hernán, MD, MPH, MS, DPH; Associate Professor of Epidemiology. Epidemiologic methods; neuroepidemiology; HIV/AIDS.

Sonia Hernández-Díaz, MD, MPH, DPH; Associate Professor of Epidemiology. Drug safety evaluation from observational data, with a special emphasis in the analysis of patterns of use and safety of drugs during pregnancy.

Frank B. Hu, MD, MPH, PhD; Professor of Nutrition and Epidemiology. Nutritional and genetic epidemiology of obesity, diabetes, and cardiovascular disease.

David J. Hunter, MB, BS, MPH, SD; Vincent L. Gregory Professor of Cancer Prevention and Dean for Academic Affairs. Genetic epidemiology; cancer epidemiology; international health.

Peter Kraft, MA, MS, PhD; Associate Professor of Epidemiology. Genetic epidemiology of complex diseases, especially cancer.

Francine Laden, MS, SD; Mark and Catherine Winkler Associate Professor of Environmental Epidemiology. Environmental risk factors of chronic diseases (e.g., cancer and cardiovascular and respiratory diseases); specific interests in exposure assessment and epidemiology of air pollution and applications of GIS.

Liming Liang, PhD; Assistant Professor of Statistical Genetics. Computational and statistical methods required for understanding human genetic variation, with a particular focus on complex human disease.

Marc Lipsitch, DPhil; Professor of Epidemiology. Population biology of infectious agents; epidemiologic methods for emerging infections; antimicrobial resistance; *Streptococcus pneumoniae*; immuno-epidemiology.

Lorelei A. Mucci, MPH, SD; Associate Professor of Epidemiology. Biomarker studies of prostate cancer risk and survival.

Megan B. Murray, MD, MPH, SD; Associate Professor of Epidemiology. Use and evolution of molecular markers in tuberculosis; transmission dynamics of infectious diseases; study of vaccine effects.

Alkes L. Price, MSE, PhD; Assistant Professor of Statistical Genetics. Population genetics and its relevance to disease mapping.

James M. Robins, MD; Mitchell L. and Robin LaFoley Dong Professor of Epidemiology. Analytic methods for drawing causal inferences in epidemiology and statistics.

Joel D. Schwartz, PhD; Professor of Environmental Epidemiology. Environmental epidemiology; natural history of lung function and disease; cost-benefit analysis; time series analysis; nonparametric smoothing and graphical methods.

George R. Seage III, MPH, DSc; Associate Professor of Epidemiology. HIV epidemiology, transmission, and prevention; translational research (impact of ARVs on pediatric outcomes); HIV epidemiologic methods; evaluation of long-term drug toxicities.

Stephanie A. Smith-Warner, MS, PhD; Associate Professor of Nutritional Epidemiology. Examination of dietary factors in relation to cancer risk.

Donna L. Spiegelman, SM, SD; Professor of Epidemiologic Methods. Statistical methods for epidemiologic research; measurement error and misclassification; global epidemiology.

Meir J. Stampfer, MD, MPH, DPH; Professor of Nutrition and Epidemiology. Influence of diet and lifestyle on health, particularly prostate cancer, other cancers, heart disease, and cognitive decline.

Eric J. Tchetgen Tchetgen, PhD; Associate Professor of Epidemiology. Methods for causal inference and missing-data models; semiparametric statistical methods for high-dimensional data; genetic epidemiology.

Dimitrios V. Trichopoulos, MD, SM; Vincent L. Gregory Professor of Cancer Prevention. Cancer epidemiology; hormone-dependent cancer intrauterine origin hypothesis.

Tyler J. VanderWeele, MA, AM, PhD; Associate Professor of Epidemiology. Epidemiologic methods; causal inference.

Marc G. Weisskopf, PhD, SM, SD; Mark and Catherine Winkler Assistant Professor of Environmental and Occupational Epidemiology. Epidemiology of neurological disease with an emphasis on environmental exposures; environmental effects on brain physiology and neurological function (e.g., cognitive function and psychiatric symptoms).

Walter C. Willett, MD, MPH, DPH; Fredrick John Stare Professor of Epidemiology and Nutrition. Nutrition; physical activity; endogenous hormones and risks of noncommunicable disease; dietary assessment methods.

Secondary Appointments

(primary appointments at Harvard Medical School, Harvard School of Dental Medicine, or Harvard Graduate School of Arts and Sciences)

Deborah Blacker, MD, SD; Associate Professor in the Department of Epidemiology. Psychiatric epidemiology; assessment methods; genetic epidemiology; epidemiology of Alzheimer's disease and other neuropsychiatric disorders; genetic association analysis.

Julie E. Buring, MS, SD; Professor in the Department of Epidemiology. Epidemiology of chronic disease, primarily cardiovascular disease and cancer; epidemiologic methodology, especially clinical trials.

Carlos A. Camargo, Jr., MPH, MD, DPH; Associate Professor in the Department of Epidemiology. Asthma/COPD; anaphylaxis; emergency medicine; U.S. dietary guidelines.

Theodore H. Cohen, MD, DPH; Assistant Professor in the Department of Epidemiology. Transmission of tuberculosis within and between communities.

Nancy R. Cook, SM, SD; Associate Professor in the Department of Epidemiology. Longitudinal data analysis; predictive modeling; hypertension prevention.

Daniel W. Cramer, MD, SM, SD; Professor in the Department of Epidemiology. Ovarian cancer; endometriosis; reproductive epidemiology.

Gary C. Curhan, MD, SM, SD; Associate Professor in the Department of Epidemiology. Nephrolithiasis risk factors and prevention; renal function decline risk factors; hypertension risk factors and prevention; gout; painful bladder syndrome; pneumonia; shingles.

Immaculata De Vivo, MPH, PhD; Associate Professor in the Department of Epidemiology. Etiology of cancer, specifically the relationship between genetic variation and disease risk for future prevention.

Alessandro Doria, MD, PhD, MPH; Associate Professor in the Department of Epidemiology. Genetic epidemiology of type-2 diabetes, especially early-onset forms; genetic epidemiology of coronary artery disease in diabetes.

Chester W. Douglass, DMD, MPH, PhD; Professor in the Department of Epidemiology. Oral epidemiology and health policy.

Alison E. Field, SD; Associate Professor in the Department of Epidemiology. Weight gain and obesity; weight cycling; eating disorders; pediatric epidemiology.

A. Lindsay Frazier, MD, ScM; Associate Professor in the Department of Epidemiology. Colorectal cancer screening and prevention.

Donald A. Goldmann, MD; Professor in the Departments of Immunology and Infectious Diseases and Epidemiology. Epidemiology of nosocomial infections; epidemiologic approaches to medical outcomes assessment and hospital quality improvement.

Francine Grodstein, SD; Associate Professor in the Department of Epidemiology. Aging; health effects of exogenous hormones; risk factors for Alzheimer's disease.

Michele R. Hacker, MSPH, SD; Assistant Professor in the Department of Epidemiology. Reproductive epidemiology, particularly adverse pregnancy outcomes and assisted reproductive technology.

Jiali Han, PhD; Assistant Professor in the Department of Epidemiology. Molecular and genetic epidemiology of cancer; epidemiology of skin cancer.

Susan E. Hankinson, MS, MPH, SD; Professor in the Department of Epidemiology. Relationships between hormonal factors and risk of breast and ovarian cancers.

Michelle D. Holmes, MD, DPH; Associate Professor in the Department of Epidemiology. Lifestyle factors affecting quality of life and survival after a cancer diagnosis, as well as cancer risk; development of observational and intervention studies in Africa and other parts of the developing world.

Jeffrey N. Katz, SM, MD; Professor in the Departments of Epidemiology and Environmental Health. Clinical policy relating to noninflammatory musculoskeletal conditions; health policy questions; back pain and upper-extremity disorders.

I-Min Lee, MBBS, MPH, SD; Associate Professor in the Department of Epidemiology. Epidemiology of cancer; physical activity and fitness and cancer incidence.

JoAnn E. Manson, MD, MPH, DPH; Professor in the Department of Epidemiology. Chronic disease epidemiology; cardiovascular and diabetes epidemiology; hormone replacement therapy; biomarkers.

Karin B. Michels, MS, MPH, SD, MSc, DPhil; Associate Professor in the Department of Epidemiology. Nutritional epidemiology and methodology; perinatal and reproductive risk factors for breast cancer.

Matthew Mimiaga, SD, MPH; Assistant Professor in the Department of Epidemiology. Psychiatric epidemiology; HIV/AIDS epidemiology.

Stacey A. Missmer, SM, SD; Assistant Professor in the Department of Epidemiology. Reproductive epidemiology: endometriosis, uterine leiomyoma, assisted reproductive technology, endogenous sex steroid hormones.

Murray A. Mittleman, MDCM, MPH, DPH; Associate Professor in the Department of Epidemiology. Epidemiology of acute risk factors triggering myocardial infarction and stroke; methodological problems in implementing case-crossover studies.

Dariush Mozaffarian, MD, DPH; Associate Professor in the Department of Epidemiology. Cardiovascular epidemiology, particularly effects of dietary and lifestyle habits.

Olivia I. Okereke, MD; Assistant Professor in the Department of Epidemiology. Epidemiology of psychiatric and cognitive aging, particularly the effects of dietary and lifestyle factors.

David L. Pauls, PhD; Professor in the Department of Epidemiology. Inheritance of behavior disorders in children and adults, specifically the interaction of genetic and environmental factors in the expression of these illnesses.

Janet W. Rich-Edwards, MPH, SD; Associate Professor in the Department of Epidemiology. Prenatal and childhood predictors of cardiovascular disease and diabetes; lifestyle determinants of fertility and pregnancy outcome.

Paul M. Ridker, MD, MPH; Professor in the Department of Epidemiology. Molecular and genetic epidemiology of hemostasis, thrombosis, and inflammation; "predictive" medicine; etiology and prevention of acute coronary syndromes.

Eric B. Rimm, SD; Associate Professor in the Departments of Epidemiology and Nutrition. Nutrition; cardiovascular disease; genetics; biomarkers; obesity; chronic disease; epidemiology; cohort studies.

Susan L. Santangelo, SD; Associate Professor in the Department of Epidemiology. Genetic epidemiology of psychiatric disorders; statistical modeling of genetically complex (non-Mendelian) diseases.

Debra A. Schaumberg, SD, OD, MPH; Associate Professor in the Department of Epidemiology. Epidemiology of eye diseases (cataract, macular degeneration, diabetic retinopathy, dry eye syndrome); genetic epidemiology; biomarkers for eye disease; blindness prevention.

Eva S. Schernhammer, MD, MPH, DPH, MS; Assistant Professor in the Department of Epidemiology. Chronic disease epidemiology; cancer biomarker and circadian rhythm research.

Sebastian Schneeweiss, MD, SM, SD; Associate Professor in the Department of Epidemiology. Pharmacoepidemiology and pharmaceutical outcomes research.

Soko Setoguchi-Iwata, MD, DPH; Assistant Professor in the Department of Epidemiology. Pharmacoepidemiology; safety and effectiveness of cardiovascular therapies; cardiovascular safety of medications, outcomes research in patients with cardiovascular disease, especially in heart failure, coronary artery disease, and cerebrovascular disease.

Daniel E. Singer, MD, MA; Professor in the Department of Epidemiology. Preventive health care.

Jordan W. Smoller, MD, SD; Associate Professor in the Department of Epidemiology. Psychiatric epidemiology; genetic association analysis; epidemiology and genetics of mood disorders; anxiety disorders, psychotic disorders and ADHD; pharmacogenetics.

Rulla Tamimi, MS, SD; Assistant Professor in the Department of Epidemiology. Molecular and cancer epidemiology; epidemiology of breast cancer with a focus on intermediate markers of risk.

Shelley S. Tworoger, MS, PhD; Assistant Professor in the Department of Epidemiology. Biomarkers in ovarian and breast cancer risk; ovarian cancer etiology.

Adjunct Faculty

Paolo Boffetta, MD, MPH. International Agency for Research on Cancer, World Health Organization.

Monique M. B. Breteler, MSc, MD, PhD. Erasmus University Medical Center, Rotterdam, the Netherlands.

Kin-Wei Arnold Chan, MD, MPH, SD. Ingenix Pharmaceutical Services.

Graham A. Colditz, MBBS, MPH, DPH, MD. Washington University School of Medicine.

Richard C. Dicker, MD, SM. Centers for Disease Control and Prevention.

Nathan Eagle, PhD. Northeastern University.

Michelangelo Fiorentino, MD, PhD. Addarii Institute of Oncology, Bologna, Italy.

Julie Goodman, ScM, PhD. Gradient Corporation.

Bernard L. Harlow, MPH, PhD. University of Minnesota School of Public Health.

Albert Hofman, MD, PhD. Erasmus University Medical School, Rotterdam, the Netherlands.

Chung-Cheng Hsieh, MPH, SM, SD. University of Massachusetts Medical Center.

John Ioannidis, University of Ioannina School of Medicine, Ioannina, Greece.

Kaumudi J. Joshipura, SM, SD. University of Puerto Rico.

Tobias Kurth, MD, SM, SD. Institute National de la Santé et de la Recherché Médicale (INSERM), Paris.

Pagona Lagiou, MD, MS, PhD. University of Athens Medical School, Greece.

K. Malcolm Maclure, SM, SD. Ministry of Health, British Columbia, Canada.

Paola Muti, MD, MSc. Italian National Cancer Institute, Rome.

John D. Seeger, PharmD, MPH, DPH. Ingenix Pharmaceutical Services.

Rob M. Van Dam, MSc, PhD. National University of Singapore.

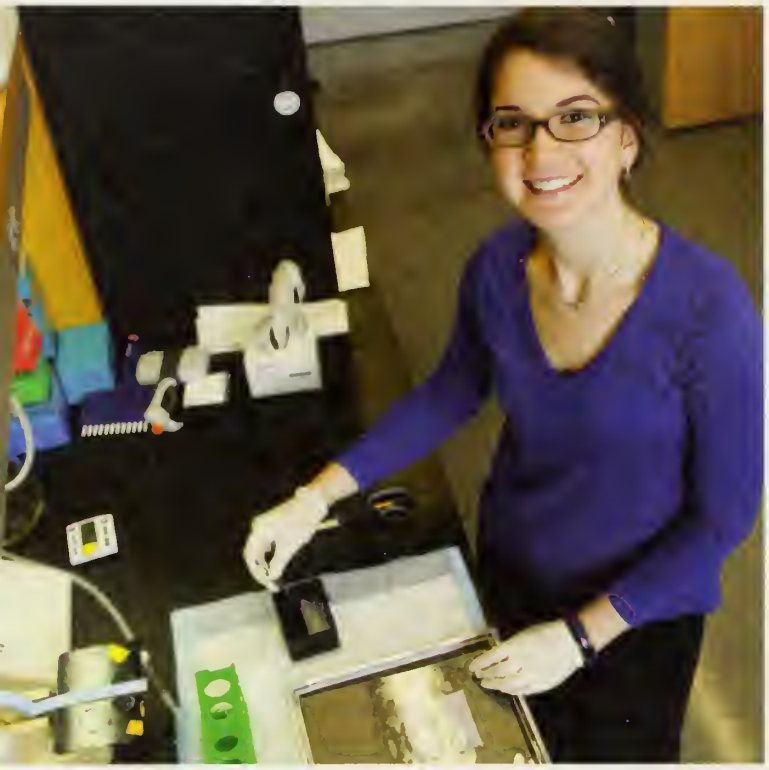
Alexander M. Walker, MPH, MD, DPH. Principal, World Health Information Sciences, Sciences Consultants, LLC.

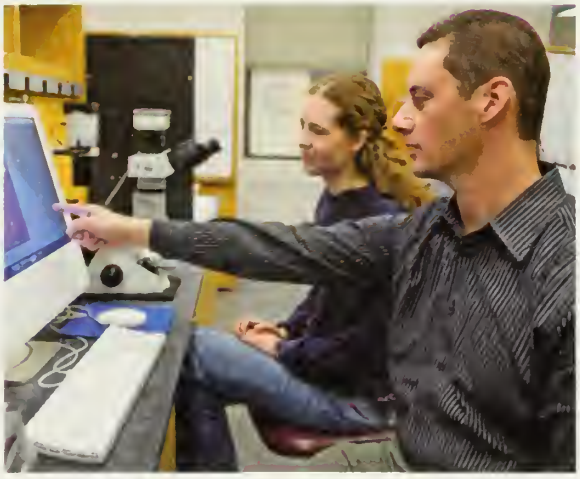
Athanasios I. Zavras, DMD, MS, DMSc. Columbia University.

Department of Genetics and Complex Diseases

Chair
Gökhan S. Hotamisligil, MD, PhD

Director of Administration
David Hastings
dhasting@hsph harvard.edu
617-432-0054





Adaptation to alterations – in nutrients, lifestyle and dietary exposures, and environmental factors – is central to human health. The emphasis of the Department of Genetics and Complex Diseases is the elaborate interplay of biological processes with environmental factors as they apply to chronic, multigenic, and multifactorial diseases, with special attention to metabolism.

Research programs in the department focus on major threats to global health and explore the molecular mechanisms of adaptive responses to environmental signals in order to elucidate the mechanisms underlying the intricate interaction among genetic determinants and their divergent responses to stress signals or metabolic input. Alterations in these integrated adaptive mechanisms, which are central to many devastating disorders – such as diabetes, cardiovascular disease, and cancer – have a major effect on the health of human populations worldwide.

The research activities in the department and its doctoral and postdoctoral training programs concentrate on the molecular, cellular, and organismic adaptations and responses to nutrients, toxins, and radiation stress. They also explore the genetic and molecular networks controlling these interactions in experimental systems. Programmatic focus is on the genetic and mechanistic approaches to biological adaptation. Integrated interdisciplinary opportunities also aim to apply this knowledge to human populations so that complex human diseases can be understood, prevented, and treated using innovative approaches.

Faculty research is concentrated within several broad categories, including stress and inflammatory signaling pathways, chronic inflammation, nutrient sensing and molecular transport, oxidative stress and adaptive stress resistance, hormone action, metabolic homeostasis, endoplasmic reticulum dysfunction and the unfolded protein response in metabolism, nuclear hormone receptors, cell growth and proliferation, and protein stability.

The areas under study include nutritional and metabolic diseases such as obesity, diabetes, and cardiovascular diseases; inflammatory bowel disease; cancer; and aging. Since most of these health problems emerge as clusters, understanding common underlying mechanisms carries the potential to translate research findings into new and effective interventions against multiple common and chronic diseases. Several research programs involve multidisciplinary collaborations with faculty members in other HSPH departments and Harvard-affiliated centers, as well as other institutions particularly involved in gene-environment interactions and the application of high-density and genomic-based technologies, proteomic approaches, and chemical biology and physiology platforms.

PRERNA BHARGAVA

PhD student, Department of Genetics and Complex Diseases

In applying to graduate programs, Prerna knew that she wanted to focus on clinically based research, looking at disease pathways and how they might be modified to restore homeostasis. She chose the HSPH program because it is one of the few that centers on the disease itself and enables students to gain different perspectives from field to lab.

Prerna was drawn to the lab of Professor Chih-Hao Lee, where the research concentrates on metabolic diseases. She enjoys the atmosphere of the lab and the freedom to pursue her own interests, particularly outcomes of infections in relation to metabolic diseases and aging. Understanding how immune cells incorporate metabolic cues to kill bacteria allows her to examine host pathways that can be manipulated to strengthen the immune response to pathogens. Ultimately, Prerna hopes to comprehend how traditional herbal remedies from various cultures can help alter the host's metabolic system to bring about positive outcomes during infection.

Learn more from Prerna's video profile: http://hsph.me/student-profiles

DEGREE PROGRAM IN GENETICS AND COMPLEX DISEASES

The department offers only the PhD. No master's programs or other doctoral programs are available.

Program Requirements

All program requirements are in addition to the schoolwide degree requirements (see page 5).

Doctor of Philosophy in Biological Sciences in Public Health (Genetics and Complex Diseases)

The department's PhD program is run through the HSPH Division of Biological Sciences, an umbrella organization comprising several of the school's departments. Prospective students should apply to the PhD program in the Division of Biological Sciences, described in full on page 54. Application is through the Harvard Graduate School of Arts and Sciences.

Contact Information

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Fax: 617-432-5236
Email: dhasting@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/departments/genetics-and-complex-diseases

For Reference

Schoolwide degree requirements are listed on page 5.

Online application to the PhD program in the Division of Biological Sciences is required. Use the Harvard Graduate School of Arts and Sciences online application form, available at: http://www.gsas.harvard.edu/prospective_students/application_instructions_and_information.php.

DEPARTMENT FACULTY

Please note that some faculty members may be on leave during academic year 2011–12.

Department chair: Gökhan S. Hotamisligil, MD, PhD; James Stevens Simmons Professor of Genetics and Metabolism. Molecular basis of metabolic diseases; studies on regulatory pathways; signal transduction in mammalian cells; biology of fatty-acid binding proteins.

Wendy S. Garrett, MD, PhD; Assistant Professor of Immunology and Infectious Diseases. Host-commensal interactions; innate immunity; inflammation and cancer.

Tiffany Horng, PhD; Assistant Professor of Genetics and Complex Diseases. Chromatin biology and epigenetics; transcriptional regulation of inflammation and immune responses.

Chih-Hao Lee, PhD; Associate Professor of Genetics and Complex Diseases. Energy metabolism regulated by nuclear receptors in immunity and metabolism.

Quan Lu, MS, PhD; Mark and Catherine Winkler Assistant Professor of Lung Biology. Receptor signaling and trafficking; gene-environment interaction; global "loss-of-function" genetic screening.

Brendan D. Manning, PhD; Associate Professor of Genetics and Complex Diseases. Signal transduction pathways underlying cancer and metabolic diseases.

James R. Mitchell, PhD; Assistant Professor of Genetics and Complex Diseases. Molecular mechanisms of lifespan extension and acute stress resistance by nutritional interventions, including dietary restriction and fasting.

Marianne Wessling-Resnick, MS, PhD; Professor of Nutritional Biochemistry. Genetic disorders of iron metabolism at the molecular level and their implications in complex disease.

Secondary Appointments

(primary appointment at Harvard Medical School)

Alan D. D'Andrea, MD; Professor in the Department of Genetics and Complex Diseases. Genetic disorders of DNA repair; molecular mechanisms of radiation resistance.

Department of Global Health and Population

Chair
Wafaie W. Fawzi, MBBS, MPH, MS, DPH

Assistant Director for Educational Programs
Barbara Heil
bheil@hsph.harvard.edu
617-432-2253

The Department of Global Health and Population (GHP) seeks to improve global health through education, research, and service from a population-based perspective. The 21st century has arrived with a complex set of demographic patterns, disease burdens, and health policies. These create challenges that affect all societies, rich and poor, developed and developing. The department's approach to these problems combines the analysis of population and health using quantitative and qualitative methods, the investigation of policies that affect health, and a concern with the politics and ethics of health and development.

The department's faculty members generate knowledge and ideas through their research, strengthen technical and leadership skills through educational programs, and enhance national capacities through collaborative projects, especially in the developing world. In their examination of global health and population issues, faculty draw on their disciplinary expertise in many areas: anthropology, biostatistics, demography, ecology, economics, epidemiology, ethics, law, medicine, political science, reproductive biology, and sociology. The department's research interests span a wide spectrum of topics, including social and economic development, health policy, and demography; design and financing of health care systems; women's and children's health; prevention and control of infectious and chronic diseases; and geographic information systems (GIS). The department has a special concern with questions of health equity and human rights, particularly in relation to health and population issues in developing countries.

Students in the department come with various backgrounds; many are from developing countries. All have an interest in the health of disadvantaged populations worldwide.

DEGREE PROGRAMS IN GLOBAL HEALTH AND POPULATION

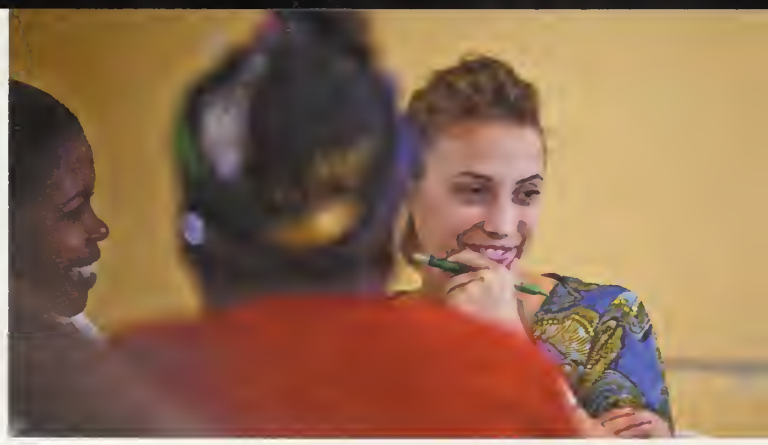
The department offers an 80-credit SM program and a doctoral program leading to the SD or DPH degree. In addition to these programs, the department hosts postdoctoral research fellows and mid-career leaders in international health, and it undertakes overseas cooperative research and intervention projects.

Program Prerequisites and Requirements

All departmental degree requirements are in addition to the schoolwide requirements (see page 5).

SM in Global Health and Population, 80-credit program

Minimum requirements for entrance: Bachelor's degree or non-U.S. equivalent in a relevant discipline. Some of the entering students hold advanced degrees in medicine or in a social science discipline. The admissions committee looks for candidates with strong quantitative skills (as demonstrated, for example, by good performance, or a minimum grade of B+ in college-level calculus or statistics courses); strong written communication skills (as demonstrated, for example, by good performance in courses requiring expository writing); and for those with relevant prior work experience in international health.



Program requirements: A core curriculum of required courses, together with electives. The coursework emphasizes the acquisition of skills and concepts necessary to address a range of global population health issues. Core courses make up roughly half of the 80 credits, allowing considerable flexibility for students to tailor their own degree programs; 60 credits must be letter-grade credits, including a 5-credit required thesis. The remainder of the credits may be taken pass/fail. The program requires a public health field experience in global health and population, which is designed to enable students to integrate and apply the skills and knowledge acquired through coursework to a public health issue in the field; develop the interpersonal skills necessary to be an effective team member within an organization; further develop oral and written communication skills; and work on a public health issue within a professional network.

In the first year, students focus on the core courses. All students take the course Foundations of Global Health and Population, GHP 272, which is offered in the first semester and provides a common platform for the more advanced work that follows. There are approximately 30 required credits in the first year of study, including schoolwide requirements; coursework in demography; population health measurement and risk factors, and ethics; and applied courses in politics and economics. During the following summer, students are expected to develop the ability to apply their skills and knowledge to contemporary problems in global health by undertaking an internship in the United States or abroad. Students often use this internship and the opportunities it provides to gather information for their thesis. In the WinterSession (January each year), many students join one of the faculty-directed field courses, which recently have included work in India, Bangladesh, Indonesia, China, Chile, Brazil, Nepal, and Tanzania.

The second year involves a combination of coursework and independent study, some linked to the thesis. Individual contracts for independent study with faculty members in the school or the university are encouraged. Many students choose to take courses in other Harvard faculties such as the Harvard Kennedy School or the Harvard Graduate School of Arts and Sciences. Since students have fewer required courses in the second year, they can specialize in areas of their choice. As an initial guideline, the GHP faculty has identified five areas of interest (AOIs) aimed to help students concentrate in specific areas: Ethics, human rights, and humanitarian studies; health economics and economic evaluation; population and health measurement; health policy and program management; and human ecology. The intent is to direct students to sets of elective courses that collectively will build skills in the specific AOI of their choice. These AOIs are fully described in a separate document.

The instruction provided through courses, field visits, and individual or small-group teaching is based largely on the firsthand current research experience of the faculty, who work on a range of applied and theoretical problems in global health and population. By graduation, therefore, students possess a solid and up-to-date understanding of the major issues in population and global

ALI HAMANDI

SM student, Department of Global Health and Population

Ali arrived at HSPH with a bachelor's degree in health sciences, substantial on-the-ground experience in the Middle East and North Africa, and a stint with the World Health Organization in Geneva and Cairo. Along the way, he co-founded Sawa ("together" in Arabic), an NGO dedicated to integrating refugee children into their host communities, and created a soap that changes color when hands are clean to encourage proper hand washing.

With complementary interests in communicable and noncommunicable diseases (NCDs), Ali is currently working with Professor David Bloom in preparation for the 2011 United Nations (UN) Summit on NCDs. He is helping to co-assess the global economic burden of cancer, diabetes, cardiovascular, and respiratory diseases.

During the summer, Ali will broaden his experience by working on health finance reform in the Middle East under the auspices of the World Bank. He also hopes to spend time at the Canadian Mission to the UN, applying lessons from his WinterSession course in Lebanon on refugees and civil rights.

Learn more from Ali's video profile: http://hsph.me/student-profiles

health; the tools to examine evidence related to program effectiveness, priority setting, and decision making; and insights into the practical aspects of undertaking population health interventions around the world, including a perspective on the economic, social, political, and ethical considerations that bear on these issues. Students have the analytical and technical skills to address health and population problems at home and abroad from a range of disciplinary perspectives. They build a set of advanced competencies covering conceptual approaches, theory and practical applications, problem solving and analysis, as well as a wide range of quantitative and qualitative methods.

Graduates contribute to the improvement of global health and the resolution of population problems by pursuing a range of careers in leadership and engagement with global health issues in national and international government agencies, NGOs, the private sector, applied research, policy analysis, and health education. The SM degree also may be used as the first step toward doctoral training.

SD in Global Health and Population/DPH

Minimum prerequisite for entrance, SD program: Bachelor's degree or non-U.S. equivalent.

Minimum prerequisites for entrance, DPH program: MPH degree (or in progress toward an MPH) and an advanced degree in a basic public health discipline.

Desired applicants to both doctoral programs have outstanding academic records, relevant experience in the international public health arena, and research interests relevant to the department. Students without sufficient training are encouraged to enter the department's SM program and apply to the doctoral program at a later date. Entry to the doctoral program depends on outstanding performance in the master's degree program and acceptance through the regular admissions process of the doctoral program.

Degree requirements, SD and DPH: A common core of coursework with a focus on global health. The second year of the doctoral program usually involves both coursework and research planning. Students must select one of three areas of interest currently offered by the department, which are described below. The chosen area becomes the student's required major. Students also must select two minor fields from the department or from allied departments of the school or university, including the HSPH Departments of Biostatistics; Epidemiology; Immunology and Infectious Diseases; Nutrition; and Society, Human Development, and Health. Pending admission to another department and completion of that department's requirements, students also may enroll in a double major.

The three areas of interest offered by the department are:

Economics This area is designed to give students a strong foundation in microeconomic theory and to develop their skills in applying economic analysis to global health and population issues. Students study economic theory and econometrics as well as recent empirical economic research related to global health and population. In addition to courses at HSPH, students are expected to take advanced courses in economics in the Department of Economics in the Harvard Faculty of Arts and Sciences and at the Harvard Kennedy School. The rigorous training provided in this area of interest, together with interdisciplinary training in other areas, will allow students to undertake their own research using economic models of behavior.

Research topics that might be pursued within the economics area include the costs and benefits of public health interventions, the effect of poverty and social deprivation on health, the influence of health improvements on the economy, the effect of government regulation on market structures and private health care provision, mechanisms for developing new drugs and treatments, and the effect of family size on child poverty and health.

Health systems Training in this area prepares students to apply a multidisciplinary approach to advance knowledge and research on strengthening health systems. The goals of reforming health systems are to advance equity, improve health outcomes, and increase efficiency. Study in this area rests on three intellectual disciplines – political economy, evaluation sciences, and ethics – and emphasizes making evidence-based policies. In their coursework students gain knowledge that will enable them to improve the design, strategy, implementation, and evaluation of health systems around the world, particularly in middle- and lower-income countries. They learn to integrate theories of economics, political science, political economy, and ethics and to apply this understanding to the critical international health system issues of the day. Through extensive coursework in program evaluation, students apply methods to assess the performance of health systems or programs. Research topics include deterministic models of health system performance; political economy of health system reform; design of systems to improve the equity, effectiveness, and efficiency of health care; reform of financing, organization, and incentive structures to improve systems' performance; evaluation of the effects of system reforms; and design and evaluation of social experiments to achieve social goals.

Population and reproductive health This area prepares students for independent research on population health issues worldwide. Through required courses, seminars, and independent study, students acquire a solid foundation in the essential demographic, epidemiologic, and statistical concepts and methods needed for

RELATED OFFERINGS
Interdisciplinary concentration in maternal and child health/children, youth, and families, see page 56.
Interdisciplinary concentration in epidemiology of infectious disease, see page 56.
Interdisciplinary concentration in women, gender, and health, see page 56.
Interdisciplinary concentration in public health leadership, see page 57.
MPH concentration in global health, see page 52.

the analysis of levels, trends, and differentials in population health and its determinants. A key element of the training is a grounding in methods for the measurement of fertility, mortality, and morbidity levels and their biological, environmental, and behavioral risk factors, all at the population level. Several courses illustrate the way in which methods and models based on demographic estimation techniques and epidemiologic relationships can be applied to new challenges in the national, regional, and global burden of disease assessments. The training is strongly quantitative, with an emphasis on analytical techniques, but some competence in the application of qualitative methods and an understanding of the broader socioeconomic theories of population health also are expected, depending on the dissertation topic.

Students in this area have recently written dissertations on such topics as HIV/AIDS in Tanzania; risk factors for the global and national burden of chronic diseases; the effects of preventable risk factors on health disparities; fertility and induced abortion in Ghana; and intergenerational factors in child growth and health in rural Africa.

The doctoral programs are designed to prepare students both for academic careers in universities or research institutions and for professional leadership positions in the public or private sectors of public health. Recent graduates have assumed postdoctoral and teaching positions with universities in the United States and around the world and have taken positions with the Centers for Disease Control and Prevention, the World Bank, and NGOs.

POSTDOCTORAL FELLOWSHIPS

The Takemi Program in International Health offers postdoctoral fellowships for professionals and scholars from around the world for research and advanced interdisciplinary training on critical issues of global health, especially those related to developing countries. Takemi Fellows are typically mid- to senior-level health professionals who spend the year working on a particular research topic. The program addresses problems of mobilizing, allocating, and managing scarce resources to improve health, and of designing strategies for disease control and health policy development. The program does not provide funding. Applicants need to identify their own source of support when applying for the fellowship.

Contact Information

For general information about the department:
Department of Global Health and Population, 665 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1232
Fax: 617-432-6733
Web: http://www.hsph.harvard.edu/departments/global-health-and-population

For master's and doctoral programs in global health and population:
Education Office, Department of Global Health and Population, 665 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-2253
Fax: 617-432-6733
Email: ajaimung@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/departments/global-health-and-population

For more information about the Takemi Program in International Health:
Program coordinator, Takemi Program in International Health, Department of Global Health and Population, 665 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-0686
Fax: 617-432-1251
Email: alevin@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/research/takemi/index.html

For Reference

Schoolwide degree requirements are listed on page 5.

Detailed application requirements are listed on page 59.

DEPARTMENT FACULTY

Please note that some faculty members may be on leave during academic year 2011–12.

Department chair: Wafaie W. Fawzi, MBBS, MPH, SM, DPH; Richard Saltonstall Professor of Population Sciences, and Professor of Nutrition, Epidemiology, and Global Health. Etiologies of infectious diseases including AIDS, TB, and malaria, with emphasis on nutritional causes; maternal, neonatal, and child health.

Till W. Baernighausen, MD, MSc, MSc, ScD; Assistant Professor of Global Health. HIV in Sub-Saharan Africa; health systems in developing countries; population health.

Lisa F. Berkman, MS, PhD; Thomas D. Cabot Professor of Public Policy and of Epidemiology. Social epidemiology; population health; epidemiology of aging.

Theresa S. Betancourt, MA, SD; Assistant Professor of Child Health and Human Rights. Developmental and psychosocial consequences of concentrated adversity on children and families; resilience and protective processes in child development; child health and human rights; applied cross-cultural mental health research.

Barry R. Bloom, PhD; Joan L. and Julius H. Jacobson Professor of Public Health, and Harvard University Distinguished Service Professor. Mechanisms of resistance and pathogenesis of diseases in developing countries, particularly tuberculosis and leprosy; genetic analysis of host resistance; development of genetically engineered vaccines against tuberculosis.

David E. Bloom, MA, PhD; Clarence James Gamble Professor of Economics and Demography. Applied economics: labor, population, health, education, and development; demography; global health; international education.

Thomas J. Bossert, MA, PhD; Lecturer on Global Health Policy. Decentralization of health systems; political process of health reform; interventions to increase social capital; reforms of public health ministries.

Claude Bruderlein, Lic.en Droit, LLM; Lecturer on Global Health. Strategic planning and program evaluation; human rights and humanitarian law; protection of civilians in war; role of international institutions in humanitarian intervention.

Paul H. Campbell, MPA, SD; Lecturer on Management. Emergency preparedness; community health centers; management issues in low-income countries.

David J. Canning, PhD; Richard Saltonstall Professor of Population Sciences. Interaction among health, population, and economic development.

Richard A. Cash, MD, MPH; Senior Lecturer on Global Health. Link between infectious diseases and impact on political, social, and economic conditions, primarily in developing countries; ethical issues in global health research; public health education in developing countries.

Marcia C. Castro, MA, PhD; Assistant Professor of Demography. Population dynamics and demographic methods; mortality and morbidity; malaria transmission and control; environmental change and health; spatial methods applied to social sciences; Amazon frontier expansion.

Jessica Lee Cohen, PhD; Assistant Professor of Global Health. Maternal and child health; human resources for health; impact evaluation of health and development policies; randomized trials.

Norman Daniels, MA, PhD; Mary B. Saltonstall Professor of Population Ethics and Professor of Ethics and Population Health. Justice, health, and health policy, specifically issues of resource allocation, health disparities, access to risk reduction and forms of health care, and insurance coverage; health technology assessment.

Günther Fink, PhD; Assistant Professor of International Health Economics. Development economics; health economics; human and health capital.

Julio Frenk, MD, MPH, MA, PhD; Dean of the Faculty, Harvard School of Public Health; and T&G Angelopoulos Professor of Public Health and International Development, Harvard Kennedy School and Harvard School of Public Health. Comparative analysis of health systems; national health policy; globalization and health.

Allan G. Hill, PhD; Andelot Professor of Demography. Health, mortality, and fertility health transitions and their determinants in the Arab world and West Africa; measuring the impact of health interventions; population health status and differentials; women's health; geographical differentials in urban health.

Kenneth Hill, PhD; Professor of the Practice of Global Health. Measurement of population health outcomes in developing countries; interpretation of differences between populations or changes over time within populations.

William C. Hsiao, MPA, PhD; K. T. Li Professor of Economics. Health systems studies; payments and incentive structures; national health insurance.

Ana Langer, MD; Professor of the Practice of Public Health. Maternal and reproductive health; implementation research; use of evidence for policy and practice; gender and reproductive health.

Jennifer Leaning, SM, MD; François-Xavier Bagnoud Professor of the Practice of Health and Human Rights, and director, François-Xavier Bagnoud Center for Health and Human Rights. Medical human rights and international law; complex humanitarian emergencies; medical triage in war and disasters; environmental effects of war.

Richard Levins, PhD; John Rock Professor of Population Sciences. Public health and agricultural ecology; evolution; qualitative mathematical modeling; complexity and philosophy of science; special interest in Latin America.

Yuanli Liu, MD, MPH, SM, PhD; Senior Lecturer on International Health. Innovative ways to make health systems in developing countries more equitable and efficient; health and pharmaceutical policy; international comparison of health systems; financing and organization

Stephen P. Marks, Doctorat d'état; François-Xavier Bagnoud Professor of Health and Human Rights. Health and human rights; international law; development economics; international trade; Cambodia; civil society; biotechnology; terrorism; cultural rights; tobacco control; access to essential drugs.

Marc D. Mitchell, MD, MS; Lecturer on Global Health. Development and validation of clinical standards; use of mobile technology to improve quality of care.

Michael R. Reich, AM, PhD; Taro Takemi Professor of International Health Policy. Political economy of health, population, and development; pharmaceutical policy and global health.

Marc J. Roberts, PhD; Professor of Political Economy. Health-sector reform around the world; public health ethics; pharmaceutical policy; ethics of disaster management.

Joshua A. Salomon, PhD; Associate Professor of International Health. Priority setting in global health; health measurement and valuation; evaluation of impact and cost-effectiveness of health programs and interventions.

David Stuckler, MPH, PhD; Assistant Professor of Political Economy. Political economy of global health and development; macroeconomics and health; comparative social welfare.

Daniel Wikler, PhD; Mary B. Saltonstall Professor of Population Ethics and Professor of Ethics and Population Health. Bioethics; ethical issues in population health and global health; ethical issues in research with human subjects; ethical issues in health resource allocation; responsibility for health.

University Professor

Paul E. Farmer, MD, PhD; Kolokotrones University Professor of Global Health and Social Medicine. Health and human rights; community-based treatment strategies in resource-poor settings.

Secondary Appointments

(primary appointments at Harvard Medical School or Harvard Kennedy School)

Jonathan L. Burstein, MD; Assistant Professor in the Departments of Global Health and Population and Health Policy and Management. Emergency medicine in the field, hospitals, and disaster situations.

Hilarie H. Cranmer, MD, MPH; Assistant Professor in the Department of Global Health and Population. Research on education of providers, women's health, and injury patterns in humanitarian operations during conflict and disaster.

David Cutler, PhD; Professor in the Department of Global Health and Population. The quality and value of U.S. health care delivery; national health care reform.

Paul Gregg Greenough, MD, MPH; Assistant Professor in the Department of Global Health and Population. Applied epidemiology and the use of information and communication technologies in humanitarian operations and disaster response.

Joseph J. Rhatigan, Jr., MD; Assistant Professor in the Department of Global Health and Population. Delivery of health services in resource-poor settings; effects of global health initiatives on health systems.

Michael J. VanRooyen, MD, MPH; Associate Professor in the Department of Global Health and Population. Research on accountability, effectiveness, and quality assurance in humanitarian operations in conflict and disaster.

Grace Wyshak, SM, PhD; Associate Professor in the Departments of Biostatistics and Global Health and Population. Global and national health, primarily women's health; cancer; osteoporosis; psychiatry; obstetrics; HIV/AIDS.

Adjunct Faculty

Peter A. Berman, MSc, PhD. World Bank.

Majid Ezzati, MEng, MA, PhD. School of Public Health, Imperial College, London.

Sofia M. Gruskin, JD, MIA. University of Southern California.

Saidi H. Kapiga, MD, MPH, SD. London School of Hygiene and Tropical Medicine.

Joel H. Lamstein, SM. John Snow, Inc.

Adetokunbo O. Lucas, MBBS, DPH, SM, MD. Consultant.

Ajay Mahal, MS, PhD. Monash University, Melbourne, Australia.

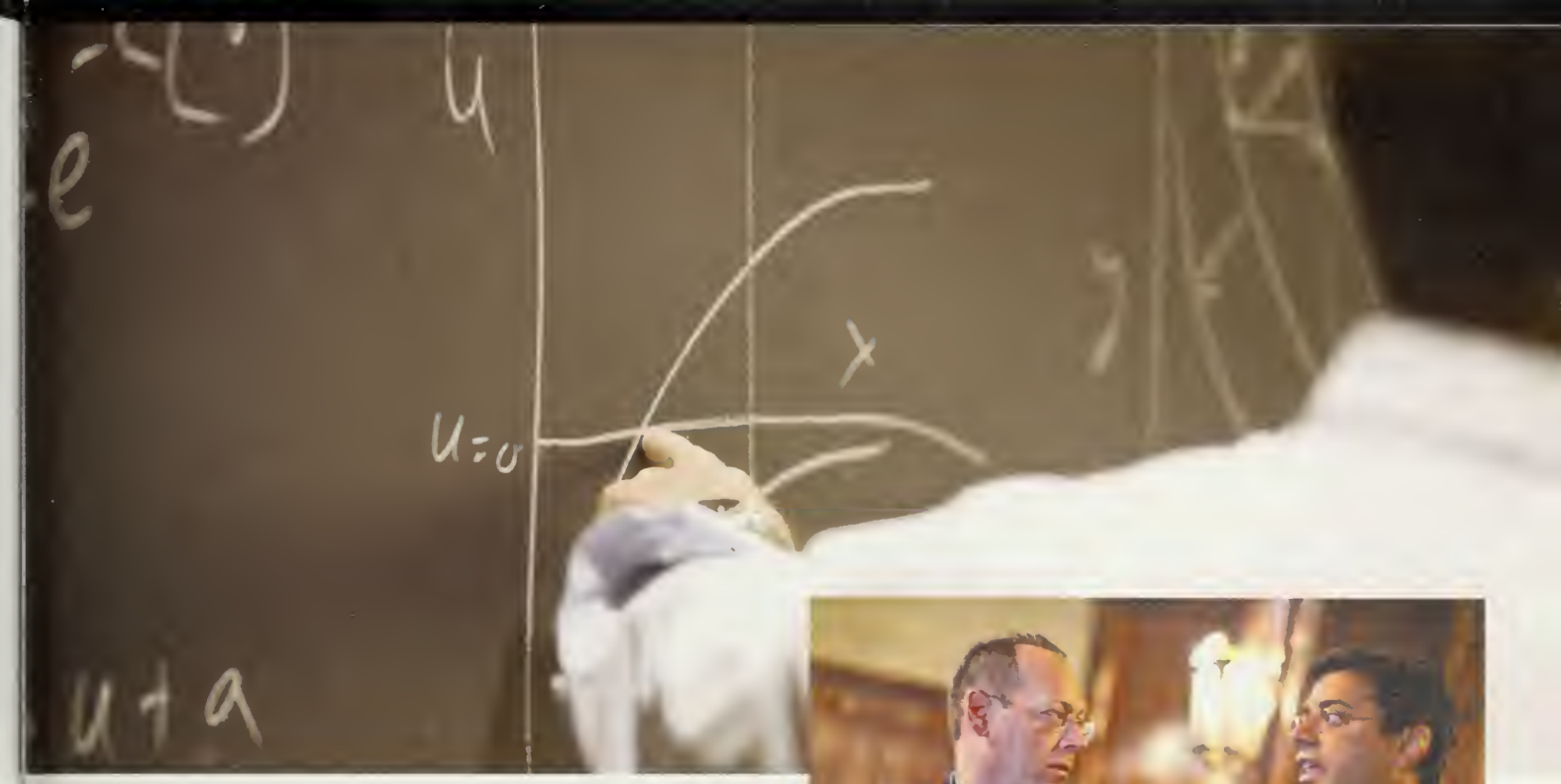
Christopher J. L. Murray, MD, DPhil. University of Washington.

M. Omar Rahman, MD, MPH, SD. Independent University of Bangladesh.

Gita Sen, MA, PhD. Indian Institute of Management, Bangalore, India.

Mary E. Wilson, MD.

Winnie Chi-Man Yip, PhD. Oxford University.



Department of Health Policy and Management

Chair
Arnold M. Epstein, AM, MD

Director of Academic Programs and Student Services
Anne Occhipinti
aocchipi@hsph.harvard.edu
617-432-4511

The Department of Health Policy and Management is concerned with the mission of improving the health care delivery system and mitigating public health risks in the United States and abroad. It is dedicated to resolving major management and health policy problems through original research, advanced training, and dispute resolution. Research priorities are organized into seven broad areas:

- **Decision science,** including the economic evaluation of strategies for prevention and therapy of chronic diseases, economic evaluation of new technology, and the development of new methodological approaches.
- **Health care management,** focusing on improving the organizational performance of health care institutions, including hospitals, physician practices, and community health centers.
- **Health economics,** including financing health care, provider payment systems, and restructuring entire health systems.
- **Law and public health,** involving empirical work at the intersection of law and health policy, including medical malpractice, medical errors and patient safety, research ethics, pharmaceuticals, and clinical ethics.
- **Quality and access,** including improving the safety and quality of health care, enhancing access, and reducing disparities.
- **Political policy,** including public opinion surveys and better understanding of public knowledge, attitudes, and beliefs about major public health and health policy issues.
- **Public health policy,** focusing on a range of issues, including injury control and youth violence prevention, negotiation and conflict resolution, and public health preparedness.

The department's problem-solving orientation is exemplified by its strong ties to leading health practitioners in hospitals, managed-care plans, community health centers, health advocacy groups, corporate medical departments, health and environmen-

GRANT PICARILLO

SM student, Department of Health Policy and Management

As an undergraduate psychology major, Grant found his way to public health by working on studies of the mental health impacts of mother-to-child, or "vertical," transmission of HIV. He also was deeply involved in health awareness and HIV education, testing, and counseling through student organizations, community-based volunteer work, and internships.

Seeing the importance of what he calls the "porous borders" in public health as well as the demographic shifts in the U.S. population, Grant joined the Peace Corps and served as a middle school teacher and health educator in Guatemala. There, he learned how to integrate public health messages into culturally sensitive contexts – not only in his classroom teaching, but also when working more informally with local community members such as midwives and teachers.

At HSPH, Grant applies his Peace Corps service to enhance his studies. He added to his experience in Latin America with a WinterSession course on health care reforms in Chile. Grant will spend the summer at the Peace Corps Office of AIDS Relief and Global Health.

Learn more from Grant's video profile: http://hsph.me/student-profiles

tal consulting firms, state and local health departments, legislative committees, federal regulatory agencies, and international agencies. Practical skills are emphasized by an interdisciplinary faculty that includes management specialists, decision analysts, accountants, physicians, lawyers, policy analysts, economists, political scientists, and program evaluators.

DEGREE PROGRAMS IN HEALTH POLICY AND MANAGEMENT

The department offers both 80-credit and 42.5-credit SM programs in health policy and management and a nonresidential, part-time SM in health care management for physicians and dental executives. In addition, the department participates in the university-wide PhD Program in Health Policy.

Program Prerequisites and Requirements

All departmental degree requirements are in addition to the schoolwide degree requirements (see page 5).

SM in Health Policy and Management, 80-credit program

Minimum prerequisites for entrance: Bachelor's degree or non-U.S. equivalent and relevant work experience. Students come from a wide variety of undergraduate fields. They are expected to have full-time work experience and an academic record, particularly in quantitative and analytical courses, that suggest outstanding potential in the areas of health policy and management. Applicants should have at least two years of relevant post-baccalaureate work experience in the health field; exceptions are occasionally made for outstanding candidates. Deferred admission is available for applicants who demonstrate strong potential but who lack sufficient professional experience in the health sector. These applicants work within the health field in positions approved by the program for a minimum of one year before matriculating.

Program requirements: Of the 80 credits necessary to earn the SM, required courses account for 30 to 35. Students also must satisfy the requirements of at least one of three areas of interest in the department:

Management This area prepares students for managerial and leadership positions in health care organizations, such as hospitals, sub-acute and long-term care facilities, physician

practices, insurers, community health centers, and consulting companies.

Policy The policy area is intended for those who wish to become involved in the formulation of health policy, including medical care policy, health finance and insurance, access to health care, payment to institutions and practitioners, political analysis and strategy, and Medicare and Medicaid reform.

Research This area is geared to students seeking to doctoral education and research careers in fields such as health economics, quality of care, technology assessment, health decision analysis, and advanced statistical analysis.

The requirements for the management, policy, and research areas of interest are described in the HPM Handbook, available from the department. After the required credits have been completed, students are encouraged to enroll in relevant courses at Harvard Business School, Harvard Kennedy School, Harvard Graduate School of Education, and the MIT's Sloan School of Management.

The program is designed for students who are building professional careers in health-related fields and who aspire to leadership roles. It emphasizes professional skills and concepts; a solid grounding in the substance of health problems; rigorous quantitative training; and a curriculum that combines professional, academic, and practice activities. Acquired knowledge is applied to practical situations through a required summer internship program and a field research project. Recent graduates have taken positions in local, state, and federal government agencies; consulting companies; public policy research organizations; community health centers; hospitals; health plans; and pharmaceutical companies. Others have gone on to doctoral and fellowship programs.

SM in Health Policy and Management, 42.5-credit program

Minimum prerequisites for entrance: A graduate medical or other doctoral degree and significant experience in health services. Applicants typically expect to devote a substantial portion of their careers to research in areas such as health services, cost-effectiveness analysis, and clinical decision making.

Program requirements: Up to 10 tutorial credits and an additional 10 credits in courses within the department. Recommended electives include upper-level courses in biostatistics, epidemiology, health economics, health services research, health decision sciences, quality improvement, and program evaluation.

The program is designed for physicians and other candidates with relevant advanced degrees who desire intensive training in analytic and quantitative skills in order to pursue research careers in public- or private-sector health care institutions. This degree is appropriate for students interested in either domestic or international research questions. Recent graduates have taken research positions at academic medical centers and other health care organizations.

SM in Health Care Management, 42.5-credit program

Minimum prerequisites for entrance: Midcareer status as an MD, DO, DMD, and DDS with significant management responsibilities and the goal of becoming more effective in the health care sector. The SM in health care management is a two-year, part-time, nonresidential degree program that trains clinicians in the executive skills required for management. Applicants must submit standardized test scores (MCATs or GREs) and demonstrate the potential to learn effectively in a challenging educational environment.

Program requirements: Coursework in strategy determination, financial analysis, negotiation, organizational behavior, operations management, information systems, and quality-of-care management. Degree candidates are required to spend three weeks each summer on campus and five four-day weekends (Friday through Monday) each academic year. Participants should expect 10 to 15 hours per week of assignments when not on campus. A final practicum and quality improvement field project also are required.

This is a closed-cohort learning situation. Attendance at all sessions is mandatory, and previous courses or degrees will not be applied to degree requirements. No auditing or cross-registration is allowed.

PhD in Health Policy

Minimum prerequisites for entrance: Bachelor's degree or non-U.S. equivalent. With the possible exception of applicants wishing to pursue a combined degree (see below), preference is given to those with either relevant work experience or some prior graduate work.

Program requirements: Approximately two years of coursework; a concentration in one academic discipline (decision science, economics, ethics, evaluative science and statistics, management, medical sociology, or political analysis); specialization in one of five policy areas (environmental health, health care services, international health, mental health, or public health) at the dissertation stage; general and concentration exams (usually at the end of the second year); a dissertation prospectus and oral examination; a dissertation based on original research; and a dissertation defense.

The program prepares students for tenure-track positions and other research positions at schools of public health, public policy, and medicine; organizations such as the Kaiser Family Foundation, the RAND Corporation, the World Health Organization, and Memorial Sloan-Kettering Cancer Center; and government agencies such as the Congressional Budget Office and the Centers for Disease Control and Prevention.

Applicants wishing to combine the PhD in health policy with either the MD program at Harvard Medical School or the JD program at Harvard Law School must apply separately to each program and indicate on the PhD application that they also are applying to the MD or JD program.

Financial aid is available to admitted applicants. Minority students with demonstrated need are eligible for aid that includes tuition for five years and a stipend for three years. Additionally, some traineeships are provided by funding sources such as the Agency for Healthcare Research and Quality and the National Institute of Mental Health.

The PhD in health policy is a collaborative program of six Harvard University faculties: the Graduate School of Arts and Sciences, School of Public Health, Medical School, Kennedy School, Law School, and Business School. Because this is an interfaculty program, enrolled students take courses throughout the university. The PhD is awarded by the Harvard Faculty of Arts and Sciences. Please note that Harvard Graduate School of Arts and Sciences application forms must be used when applying to the program. The application deadline is December 15, 2011.

RELATED OFFERINGS

Interdisciplinary concentration in epidemiology of infectious disease, see page 56.
Interdisciplinary concentration in women, gender, and health, see page 56.
Interdisciplinary concentration in public health leadership, see page 57.
MPH concentrations in health care management and policy and in law and public health, see pages 52–53.

Contact Information

For SM programs in health policy and management:
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Email: aocchipi@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/departments/health-policy-and-management/academic-programs

For the SM program in health care management:
Colin Fleming, senior coordinator, Department of Health Policy and Management, 677 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-7075
Email: cfleming@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/mhcm

For the PhD program:
Deborah Whitney, associate director, PhD Program in Health Policy, 14 Story Street, 4th Floor, Cambridge, MA 02138 USA
Phone: 617-496-5506
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For Reference

Schoolwide degree requirements for the SM programs are listed on page 5.

Online application to the PhD program is required. Use the Harvard Graduate School of Arts and Sciences online application form, available at: http://www.gsas.harvard.edu/prospective_students/application_instructions_and_information.php.

DEPARTMENT FACULTY

Please note that some faculty members may be on leave during academic year 2011–12.

Department chair: Arnold M. Epstein, AM, MD; John H. Foster Professor of Health Policy and Management. Applying the paradigm and methodologies of economics and other social sciences to clinical medicine.

Katherine Baicker, PhD; Professor of Health Economics. The financing of health insurance; health care disparities; spending on public programs and fiscal federalism.

Robert J. Blendon, MBA, MPH, DS; Professor of Health Policy and Political Analysis, and Senior Associate Dean for Policy Translation and Leadership Development. Health policy and political analysis; public opinion; national emergency preparedness.

Paul H. Campbell, MPA, SD; Lecturer on Management. Emergency preparedness; community health centers; management issues in low-income countries.

Susanne J. Goldie, MD, MPH; Roger Irving Lee Professor of Public Health and Director of the Harvard Global Health Institute. Decision science; mathematical models; cost-effectiveness analysis; resource allocation; health systems; infectious causes of cancer; vaccine-preventable disease; maternal mortality.

James K. Hammitt, SM, MPP, PhD; Professor of Economics and Decision Sciences. Economics; decision sciences; risk analysis; information and uncertainty.

David Hemenway, MA, PhD; Professor of Health Policy. Injury and violence prevention; microeconomics.

William C. Hsiao, MPA, PhD, K. T. Li Professor of Economics. Health systems studies; payments and incentive structures; national health insurance.

Ashish K. Jha, MD, MPH; Associate Professor of Health Policy and Management. Quality of care provided by health care systems, with two focus areas: health care disparities as a marker of poor quality of care and HIT as a potential solution for improving care.

Nancy M. Kane, MBA, DBA; Professor of Management and Associate Dean for Educational Programs. Nonprofit hospital governance; community benefit and financial performance metrics for nonprofit health care organizations; delivery system payment reform.

Jack Kasten, MPH, JD; Lecturer on Health Services. Managed care; service utilization; manpower issues; hospital organization and management.

Jane J. Kim, SM, PhD; Assistant Professor of Health Decision Science. Mathematical modeling and cost-effectiveness analysis to inform resource allocation decisions; calibration of disease simulation models; women's health and mental health.

Leonard J. Marcus, MSW, PhD; Lecturer on Public Health Practice. Meta-leadership for emergency preparedness and response; crisis leadership; health care/public health negotiation and conflict resolution; public health leadership; mediation for health care disputes.

John E. McDonough, DPH, MPA; Professor of the Practice of Public Health. National health reform and the Affordable Care Act; state-based health reform and Massachusetts health reform; health care regulation; health care politics.

Michelle M. Mello, MPhil, PhD, JD; Professor of Law and Public Health. Empirical analysis of health law issues; medical malpractice litigation; medical errors and patient safety; pharmaceuticals; ethics.

Matthew J. Miller, MD, MPH, SD; Associate Professor of Health Policy and Management. Suicide prevention; injury prevention; violence prevention; health policy; epidemiology; pharmacoepidemiology; medical ethics; clinical trials.

Joseph P. Newhouse, PhD; John D. MacArthur Professor of Health Policy and Management. Financing and organization of medical care; medical malpractice; manpower policy; outcomes research.

R. Heather Palmer, MBBCh, SM; Senior Lecturer on Health Policy and Management. Quality in health care, including quality measurement and improvement; primary care.

Stephen C. Resch, MPH, PhD; Lecturer on Health Policy. Economic evaluation of public health interventions; health technology assessment; decision analysis for health resource allocation; application of operations research methods to optimize health care delivery.

Howard L. Rivenson, MBA, PhD; Lecturer on Health Management. Accounting and financial management of health care organizations; community health centers; governance of health care organizations.

Marc J. Roberts, PhD; Professor of Political Economy. Health-sector reform around the world; public health ethics; pharmaceutical policy; ethics of disaster management.

Meredith Rosenthal, PhD; Professor of Health Economics and Policy. Health economics; physician payment; pharmaceutical policy; health care quality; patient incentives.

Sara J. Singer, MBA, PhD; Assistant Professor of Health Care Management and Policy. Application of organizational safety, organizational learning, and leadership theories to understand and improve the quality, safety, and efficiency of health care organizations.

Benjamin D. Sommers, MD, PhD; Assistant Professor of Health Policy and Economics. Health insurance and access to care among disadvantaged populations; Medicaid and the uninsured; medical decision making; primary care.

Katherine Swartz, MS, PhD; Professor of Health Policy and Economics. Populations without health insurance; health insurance markets; aging-population issues.

Nancy Turnbull, MBA; Senior Lecturer on Health Policy and Management and Associate Dean for Educational Programs. Health insurance; insurance regulation; expansion of health coverage.

Milton C. Weinstein, AM, MPP, PhD; Henry J. Kaiser Professor of Health Policy and Management. Medical decision science; cost-effectiveness analysis; health care technology assessment.

Secondary Appointments

(primary appointments at Harvard Medical School)

John Z. Ayanian, MD, MPP; Professor in the Department of Health Policy and Management. Impact of gender, race, insurance coverage, and socioeconomics on access to care and clinical outcomes.

David W. Bates, MD, SM; Professor in the Department of Health Policy and Management. Clinical decision making and physician behavior; quality of care and cost-effectiveness; outcome assessment.

Paul D. Biddinger, MD; Assistant Professor in the Department of Health Policy and Management. Public health preparedness for disasters; use of simulation exercises for adult learning and measurement of performance.

Jonathan L. Burstein, MD; Assistant Professor in the Departments of Global Health and Population, and Health Policy and Management. Emergency medicine in the field, hospitals, and disaster situations.

Kenneth A. Freedberg, MD, SM; Professor in the Department of Health Policy and Management. Decision analysis; cost-effectiveness analysis; clinical epidemiology and outcomes research; HIV disease.

Atul A. Gawande, MA, MD, MPH; Associate Professor in the Department of Health Policy and Management. Reduction of errors and complications in surgery; global provision of surgical care; narratives from medicine.

G. Scott Gazelle, MD, MPH, PhD; Professor in the Department of Health Policy and Management. Technology assessment; health services research.

Thomas A. Gaziano, MD, MSc; Assistant Professor in the Department of Health Policy and Management. Development of decision analytic models to assess the cost-effectiveness of various screening, prevention, and management decisions, including in developing countries.

Allen B. Kachalia, JD, MD; Assistant Professor in the Department of Health Policy and Management. Patient safety; medical malpractice reform; legal issues in medicine.

Thomas H. Lee, Jr., MD, SM; Professor in the Department of Health Policy and Management. Prognostic stratification in and cost-effectiveness analysis of cardiovascular disease management.

Jeffrey Levin-Scherz, MD, MBA; Assistant Professor in the Department of Health Policy and Management. Health care affordability; managed care; provider incentives and disease management.

Matthew H. Liang, MD, MPH; Professor in the Department of Health Policy and Management. Epidemiology of rheumatic disease and disability; clinimetrics; health services research; technology assessment.

Eric C. Schneider, MSc, MD; Associate Professor in the Department of Health Policy and Management. Health care quality, including quality measurement, organizational and socioeconomic influences, and quality improvement strategies.

Jane C. Weeks, MD, SM; Professor in the Department of Health Policy and Management. Outcomes of cancer treatment; effectiveness of resource utilization in medical oncology; medical decision making in oncology.

Joel S. Weissman, PhD; Associate Professor in the Department of Health Policy and Management. Access to care for the uninsured; disparities in care for vulnerable populations; quality and patient safety; drug policy.

Delia Wolf, MD, MSCI, JD; Assistant Professor in the Department of Health Policy and Management and Assistant Dean for Regulatory Affairs and Research Compliance. Quality assurance and improvement approaches in biomedical, social, behavioral, and public health research; ethical issues in global health research; investigator and Institutional Review Board (IRB) liabilities in the conduct and review of human-subjects research.

Adjunct Faculty

Mark Barnes, JD, LLM. Chief Research Compliance Officer and Senior Adviser to the Provost, Harvard University.

Mark A. Bloomberg, MD, MBA. Tufts University School of Medicine.

Troyen A. Brennan, MA, JD, MPH, MD. Aetna.

Joanna Brougher, JD, MPH. Greenberg, Traurig, LLP.

Mark J. Campbell, MEd. M. J. Campbell Associates.

James B. Conway, MA, MS. Institute for Health Care Improvement.

Deborah Devaux, MHSA. BDC Advisors, LLC.

Barry Dorn, MD, MHCM. Tufts University School of Medicine.

Christie L. Hager, MPH, JD. U.S. Department of Health and Human Services.

Maria G. M. (Myriam) Hunink, MD, PhD. Erasmus University Medical Center, Rotterdam, the Netherlands.

David Javitch, MA, PhD. Boston University School of Public Health.

Cleve L. Killingsworth, MPH. Blue Cross Blue Shield of Massachusetts.

Karl W. Lauterbach, MD, MPH, MS, SD. Institute of Health Economics and Clinical Epidemiology, Cologne, Germany.

Lucian L. Leape, MD. Institute for Healthcare Improvement.

Eugene Litvak, MS, PhD. Boston University School of Public Health.

Linda MacCracken, MBA. Solucient Business Development.

Benjamin W. Moulton, JD, MPH. American Society of Law, Medicine, and Ethics.

Laurie Pascal, MBA, MPH. Beth Israel Deaconess Medical Center.

Joseph S. Pliskin, SM, PhD. Ben-Gurion University, Israel.

Lisa A. Prosser, MS, MS, PhD. University of Michigan.

Deborah B. Prothrow-Stith, MD. SpencerStuart.

Dorothy E. Puhy, MBA. Dana-Farber Cancer Institute.

Karen M. Quigley, MPH. Community Catalyst.

Vinod K. Sahney, MSME, PhD. Institute for Health Care Improvement.

Uwe Siebert, MD, MPH, SM, SD. University for Health Sciences, Medical Informatics and Technology, Austria.

Richard B. Siegrist, Jr., MS, MBA. WebMD Quality Services.

Josko Silobrcic, MPH, MD, JS. Consulting.

Donna Soodalter-Toman, MPH. DS-Toman & Associates Consulting.

David M. Studdert, LLB, MPH, SD. University of Melbourne, Australia.

Alicia Ely Yamin, MPH, JD. Harvard Law School.

Chair
Dyann F. Wirth, PhD

Administrative Coordinator
Andrea Sabaroff
http://www.gsas harvard.edu/prospective_students/application_instructions_and_information php

The Department of Immunology and Infectious Diseases (IID) focuses on the biological, immunological, epidemiologic, and ecological aspects of viral, bacterial, protozoan, and helminthic diseases of animals and humans, and on the vectors that transmit some of these infectious agents.

Research in the department emphasizes basic pathogenic mechanisms that may lead to better diagnostic tools, the development of vaccines and other interventions for prevention and control of infection and disease, and the identification of new targets for antiviral and antiparasitic drugs. Laboratory-based research within the school may be supplemented by field-based studies of epidemiologic and ecological aspects of infectious disease transmission and control. Diseases of developing countries are emphasized.

Department of Immunology and Infectious Diseases

Members of the department take a multidisciplinary approach that includes immunology, molecular biology, public health entomology, cell biology and ultrastructure, biochemistry, pathology, virology, epidemiology, and ecology. The faculty undertakes research both within the school and around the world.

Infectious diseases currently under study include protozoa (malaria, leishmania); helminths such as schistosomes and viruses (HIVs, leukemia retroviruses, West Nile virus, eastern equine encephalitis); and bacteria (Lyme disease agents, ehrlichia, tuberculosis). Further immunologic studies focus on genetic regulation of the immune response, the function and regulation of T-cell-derived cytokines, and cytokines involved in the regulation of inflammation.

DEGREE PROGRAM IN IMMUNOLOGY AND INFECTIOUS DISEASES

The department offers only the PhD. No master's programs or other doctoral programs are available.

Program Requirements

All program requirements are in addition to the schoolwide degree requirements (see page 5).

Students in this program choose from among the areas of interest described below:

Immunology This area currently focuses on genetic regulation of the immune response and the function and regulation of T-cell-derived cytokines. Students take courses in cell biology, immunology, and molecular immunology.

Immunology and molecular biology of parasitic and other infections Study in this area introduces students to recent advances in the biology of parasitic and infectious diseases and provides background for conducting research on them. The curriculum emphasizes molecular biology, immunology, cell biology, and the epidemiology of parasites.

Infectious disease epidemiology and tropical public health This area provides a solid understanding of epidemiology, ecology, and control of infectious diseases in developing countries. It stresses control and prevention measures and the biological basis of diseases caused by pathogens that range from viruses to parasites.

Vector biology, ecology, and control In this area, the focus is on the manner in which blood-feeding arthropods interact with their various vertebrate hosts and with the human pathogens that they transmit. The curriculum combines biological experimentation, epidemiologic analysis, and population studies. Students become familiar with the various arthropods that are associated with human disease and learn the ways environmental change may result in ill health. Students conduct studies on mechanisms of transmission of

REGINA JOICE

PhD student, Department of Immunology and Infectious Diseases

Regina's path began with an interest in infectious diseases, and her lab experiences convinced her that she needed a PhD in order to eventually run her own research lab. She then decided that at HSPH she would be uniquely positioned to combine biology and public health.

Based on an undergraduate research internship in Tanzania, Regina knew that she wanted her PhD to involve both lab and field experience. Malaria research attracted her, and she joined the lab of Professor Matthias Marti, where she is investigating the transcriptional signatures specific to the stage of malaria that causes transmission. During three transmission seasons in Malawi, Regina has been able to look at the malaria parasite in its natural state. In the lab, she has designed assays that she administers in the field, analyzing infected blood drawn directly from patients. While Regina says that transporting the materials to and from Malawi is a "logistical nightmare," she enjoys the satisfaction of developing effective assays that yield usable data.

Learn more from Regina's video profile: http://hsph.me/student-profiles

vector-borne pathogens, both in the laboratory and in the field, and devise novel intervention strategies.

Virology The virology area is designed to prepare a future generation of experts for new developments in the pathogenesis and prevention of AIDS and other infectious diseases. At present the program emphasizes the epidemiology, biology, and development of a vaccine against AIDS as an example of a complex infectious disease.

Students take courses in virology, vaccine development, and related fields.

RELATED OFFERING
Interdisciplinary concentration in epidemiology of infectious disease, see page 56.

PhD in Biological Sciences in Public Health (Immunology and Infectious Diseases)

The department's PhD program is run through the HSPH Division of Biological Sciences, an umbrella organization comprising several of the school's departments. Prospective students should apply to the PhD program in the Division of Biological Sciences, described in full on page 54. Application is through the Harvard Graduate School of Arts and Sciences.

Contact Information

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Web: http://www.hsph.harvard.edu/departments/immunology-and-infectious-diseases/degree-programs/

For Reference

Schoolwide degree requirements are listed on page 5.

Online application to the PhD program in the Division of Biological Sciences is required. Use the Harvard Graduate School of Arts and Sciences online application form, available at: http://www.gsas.harvard.edu/prospective_students/application_instructions_and_information.php.

DEPARTMENT FACULTY

Please note that some faculty members may be on leave during academic year 2011–12.

Department chair: Dyann F. Wirth, PhD; Richard Pearson Strong Professor of Infectious Diseases. Biochemistry; molecular biology; genomics; microbiology; parasitology.

Barry R. Bloom, PhD; Joan L. and Julius H. Jacobson Professor of Public Health, and Harvard University Distinguished Service Professor. Mechanisms of resistance and pathogenesis of diseases, particularly tuberculosis and leprosy; genetic analysis of host resistance; genetically engineered vaccines against tuberculosis.

Barbara Burleigh, PhD; Associate Professor of Immunology and Infectious Diseases. Chagas disease; host-pathogen interactions.

Manoj T. Duraisingh, MSc, PhD; Associate Professor of Immunology and Infectious Diseases. Molecular basis of the mechanisms underlying the pathogenesis of *Plasmodium falciparum* malaria; devising vaccine and drug strategies for control of the disease.

Myron (Max) Essex, MS, DVM, PhD; Mary Woodward Lasker Professor of Health Sciences. Role of retroviruses as infectious agents in AIDS; mechanisms of immunosuppression by retroviruses; African HIVs.

Sarah M. Fortune, MD; Assistant Professor of Immunology and Infectious Diseases. Molecular mechanisms by which *Mycobacterium tuberculosis* persists and causes disease in the infected host.

Wendy S. Garrett, MD PhD; Assistant Professor of Immunology and Infectious Diseases. Host-commensal interactions; innate immunity; inflammation and cancer.

Laurie H. Glimcher, MD; Irene Heinz Given Professor of Immunology. Biochemical and genetic approaches to elucidate the molecular pathways that regulate CD_4 T helper-cell development and activation.

Michael J. Grusby, PhD; Professor of Molecular Immunology and Senior Associate Dean for Academic Affairs and Diversity. Molecular and genetic analysis of the JAK/STAT signaling pathway.

Tiffany Horng, PhD; Assistant Professor of Genetics and Complex Diseases. Chromatin biology and epigenetics; transcriptional regulation of inflammation and immune responses.

Phyllis J. Kanki, DVM, SD; Professor of Immunology and Infectious Diseases. Pathobiology and molecular epidemiology of HIVs; characterization of immune responses and correlation to disease pathogenicity; impact of genetic variation.

Tun-Hou Lee, SM, SD; Professor of Virology. Human and nonhuman primate retroviruses; AIDS vaccine research and development.

Marc Lipsitch, DPhil; Professor of Epidemiology. Population biology of infectious agents; epidemiologic methods for emerging infections; antimicrobial resistance; *Streptococcus pneumaniae;* immuno-epidemiology.

Richard G. Marlink, MD; Bruce A. Beal, Robert L. Beal, and Alexander S. Beal Professor of the Practice of Public Health. Clinical, epidemiologic, and experimental approaches to improve HIV/AIDS prevention, care, and treatment in the developing world; role of host and virus in determining HIV outcomes.

Matthias Marti, MSc, PhD; Assistant Professor of Immunology and Infectious Diseases. Systematic analysis of virulence domains in *Plasmadium falciparum;* comparative biology of malaria parasites.

Eric J. Rubin, MD, PhD; Professor of Immunology and Infectious Diseases. Genetics of tuberculosis.

Secondary Appointments

(primary appointments at Harvard Medical School or Harvard Faculty of Arts and Sciences)

Antonios O. Aliprantis, MD, PhD; Assistant Professor in the Department of Immunology and Infectious Diseases.

Samuel M. Behar, PhD, MD; Associate Professor in the Department of Immunology and Infectious Diseases. Characterization of immunological pathways required for host defense against *Mycobacterium tuberculosis* infection; mechanisms of vaccine-induced protection against tuberculosis.

Marcia B. Goldberg, MD; Associate Professor in the Department of Immunology and Infectious Diseases. Characterization of the molecular mechanisms underlying the interactions of bacterial pathogens with host cells; mechanisms of bacterial cell organization relevant to virulence.

Anne E. Goldfeld, MD; Professor in the Department of Immunology and Infectious Diseases. Studies on immunopathogenesis of tuberculosis and AIDS and their integration with novel community-based approaches to treatment; TNF gene regulation.

Donald A. Goldmann, MD; Professor in the Departments of Immunology and Infectious Diseases and Epidemiology. Epidemiology of nosocomial infections; epidemiologic approaches to medical outcomes assessment and hospital quality improvement.

Daniel Hartl, PhD; Professor in the Department of Immunology and Infectious Diseases. Population genetics; evolutionary genomics; molecular evolution of malaria parasites.

Martin S. Hirsch, MD; Professor in the Department of Immunology and Infectious Diseases. Pathogenesis and therapy of human retrovirus and herpes virus infections.

Ann-Hwee Lee, PhD; Assistant Professor in the Department of Immunology and Infectious Diseases. Transcriptional regulation of hepatic lipid metabolism; endoplasmic reticulum stress response in animal physiology; unfolded protein response.

Shahin Lockman, MD, SM; Assistant Professor in the Department of Immunology and Infectious Diseases. Prevention of mother-to-child HIV-1 transmission; antiretroviral therapeutics for HIV/AIDS in resource-limited settings.

Kenneth McIntosh, MD; Professor in the Department of Immunology and Infectious Diseases. Pathogenesis, prevention, and treatment of pediatric respiratory viral diseases; coronaviruses; new methods in viral diagnosis; epidemiology and pathogenesis of respiratory infections.

Danny A. Milner, Jr., MD; Assistant Professor in the Department of Immunology and Infectious Diseases. *Plasmodium falciparum* genetic diversity and severe disease; pathology in resource-poor settings; infectious disease and surgical pathology.

Edward A. Nardell, MD; Associate Professor in the Departments of Immunology and Infectious Diseases and Environmental Health. Airborne transmission and infection control of *Mycobacterium tuberculosis;* air disinfection with ultraviolet irradiation.

Edward T. Ryan, MD, DTM&H; Associate Professor in the Department of Immunology and Infectious Diseases. Enteric infections and the development of vaccines protective against such infections.

Pardis Sabeti, MD, DPhil; Assistant Professor in the Department of Immunology and Infectious Diseases. Investigation of natural selection in the genomes of humans, and pathogens that affect humans, with a focus on malaria and Lassa fever.

Roger L. Shapiro, MD, MPH; Associate Professor in the Department of Immunology and Infectious Diseases. Prevention of mother-to-child HIV transmission; HIV treatment and prevention.

Joseph G. Sodroski, MD; Professor in the Department of Immunology and Infectious Diseases. Role of the HIV-1 envelope glycoproteins in virus entry; topological and structural analysis of the HIV-1 envelope glycoproteins; generation of HIV-1 neutralizing antibodies.

Bruce D. Walker, MD; Professor in the Department of Immunology and Infectious Diseases. Characterization of the correlates of immune protection in HIV infection; HIV evolution under immune selection pressure; HIV vaccine development.

Peter F. Weller, MD; Professor in the Department of Immunology and Infectious Diseases. Investigations pertinent to the roles of eosinophils in allergic and antiparasite immune responses and to the cellular biology of leukocytes underlying their functions in infectious and immune inflammatory responses.

Adjunct Faculty

Claudio A. Hetz, PhD. University of Chile.

Fotis C. Kafatos, MA, PhD. Imperial College, London, United Kingdom.

Manolis Kellis, PhD. Massachusetts Institute of Technology.

Thomas P. C. Monath, MD. Kleiner Perkins Caufield & Byers.

Marc A. T. Muskavitch, PhD. Boston College.

Stephen J. O'Brien, PhD. National Cancer Institute.

Department of Nutrition

Chair
Walter C. Willett, MD, MPH, DPH

Departmental Program Administrator
Colleen Bertrand
cbertran@hsph.harvard.edu
617-432-1851

The mission of the department is to improve human health through enhanced nutrition. It strives to accomplish this goal through research aimed at an increased understanding of how diet influences health, the dissemination of new knowledge about nutrition to health professionals and the public, the development of nutritional strategies, and the education of researchers and practitioners.

The department provides training and research opportunities in basic science relating to nutrition and in epidemiologic aspects of nutrition as they affect public health. Nutrition policy and the evaluation of nutritional interventions are long-standing interests of the department, particularly as they concern the populations of Latin America, Africa, Asia, and the United States. Department research ranges from molecular biology to human studies of cancer and heart disease, including the conduct of population-based intervention trials. Students learn and use the latest techniques in biochemistry, physiology, biostatistics, epidemiology, and related fields. All research, whether basic or applied, is relevant to human health.

Current research covers a wide range of topics, including large prospective studies of dietary factors in relation to heart disease, cancer, diabetes, and ophthalmologic disease; development of methods to assess nutritional status by analysis of body tissue; the interaction of nutritional factors with genetic determinants of disease; the interaction of nutritional factors and infectious agents; nutritional influence on blood pressure; effects of nutrition programs on the mental and physical consequences of malnutrition; nutritional determinants of blood lipid factors; lipoprotein metabolism; molecular mechanisms of diabetes and obesity; regulation of the intra- and inter-cellular delivery of macromolecular nutrients; and the molecular mechanism leading to atherosclerosis and thrombosis.

DEGREE PROGRAMS IN NUTRITION

The department offers the SD in nutrition, the DPH, and the PhD in nutritional biochemistry/cardiovascular biology. No master's degree programs are available.

Program Prerequisites and Requirements

All departmental degree requirements are in addition to the schoolwide degree requirements (see page 5).

ANDREW THORNE-LYMAN, MHS

SD candidate, Department of Nutrition

During a decade abroad, most of it at the Nutrition and HIV Policy Service of the United Nations World Food Programme, Andrew concluded that he needed a doctoral degree in order to improve the effectiveness of food initiatives through better data and analysis. HSPH offered exactly what he was seeking because of its strengths in nutrition, epidemiology, and biostatistics.

With an interest in birth outcomes driven by his own young twins, Andrew is studying how maternal vitamin D deficiency during pregnancy is associated with adverse outcomes for both mothers and children, ranging from preeclampsia to intrauterine growth retardation to infectious diseases. His dissertation data came from research conducted in Tanzania by his adviser, Professor Wafaie Fawzi, and the Danish National Birth Cohort. Classes at HSPH have expanded Andrew's interest to problems of overnutrition and chronic disease, which he expects will become the greater problem over the course of his career.

Learn more from Andrew's video profile: http://hsph.me/student-profiles

SD in Nutrition/DPH

Minimum prerequisites for entrance, SD program: Bachelor's degree or non-U.S. equivalent. Applicants must have a strong background in biology and mathematics. An MD or other professional health-related degree is desirable but not required.

Minimum prerequisites for entrance, DPH program: MPH (or in progress toward an MPH and an advanced degree in a public health discipline). Applicants must have a strong background in biology and mathematics. An MD or other professional health-related degree is desirable but not required.

Program requirements, SD and DPH programs: A concentration in one of the three areas listed below. Each concentration provides rigorous training in epidemiology and biostatistics as well as in the biological aspects of nutrition.

Nutritional epidemiology concentration: The overall objective of the nutritional epidemiology concentration is to enable students to investigate relationships between diet and disease. One of the two required minors must be in epidemiology.

Public health nutrition concentration: Students in public health nutrition combine behavioral sciences with biological and quantitative approaches to design and evaluate nutrition programs, policies, and the dissemination of nutrition research. Students must complete one minor in quantitative methods (biostatistics or epidemiology) and one minor in a behavioral science relevant to the development of public health programs and policies (for example, society, human development, and health).

Nutritional biochemistry concentration: Described under the PhD program, next column.

Students may pursue a joint program with the Department of Epidemiology. Admission requires the approval of both departments, and applicants should contact the Department of Nutrition before making formal application. Students in such a joint program must satisfy the major requirements of both departments, complete a minor acceptable to both, and write a dissertation on a topic concerning both nutrition and epidemiology.

For the SD and DPH programs, funding may be available through the NIH-supported Training Program in Nutritional Science for students with previous doctoral degrees.

Graduates are prepared for careers as research scientists in academic institutions, private-sector organizations, and public health agencies in state, national, and international settings. Recent graduates now are working at universities, research foundations, pharmaceutical companies, the National Cancer Institute, and the American Cancer Society.

PhD in Biological Sciences in Public Health (Nutritional Biochemistry/Cardiovascular Biology)

The department's PhD program is run through the HSPH Division of Biological Sciences, an umbrella organization comprising several of the school's departments. Prospective students should apply to the PhD program in the Division of Biological Sciences, described in full on page 54. Application is through the Harvard Graduate School of Arts and Sciences.

The PhD program in nutritional biochemistry offers rigorous training in biochemistry, cell biology, and metabolism, allowing students to work toward solving nutritional and metabolic prob-

lems in the laboratory. Students in cardiovascular biology learn to use cutting-edge technologies from molecular biology, biochemistry, and genetics to critically dissect the mechanisms underlying cardiovascular diseases, such as heart attacks, strokes, heart failure, atherosclerosis, and congenital heart disease.

RELATED OFFERINGS

Interdisciplinary concentration in maternal and child health/ children, youth, and families, see page 56.
Interdisciplinary concentration in obesity epidemiology and prevention, see page 57.
Interdisciplinary concentration in women, gender, and health, see page 56.
Interdisciplinary concentration in public health leadership, see page 57.
MPH concentration in health and social behavior, see page 52.
Nutritional epidemiology area of interest, Department of Epidemiology, see page 22.

For Reference

Schoolwide degree requirements for the SD and DPH programs are listed on page 5.

Online application to the PhD program in the Division of Biological Sciences is required. Use the Harvard Graduate School of Arts and Sciences online application form, available at: http://www.gsas.harvard.edu/prospective_students/application_instructions_and_information.php.

DEPARTMENT FACULTY

Please note that some faculty members may be on leave during academic year 2011–12.

Department chair: Walter C. Willett, MD, MPH, DPH; Fredrick John Stare Professor of Epidemiology and Nutrition. Nutrition; physical activity; endogenous hormones and risks of noncommunicable disease; dietary assessment methods.

Alberto Ascherio, MD, MPH, DPH; Professor of Epidemiology and Nutrition. Nutritional epidemiology; epidemiology of neurological diseases.

Hannia N. Campos, MS, PhD; Senior Lecturer on Nutrition. Essential fatty acids and chronic disease.

Jorge E. Chavarro, MD, SD; Assistant Professor of Nutrition and Epidemiology. Influence of nutritional and lifestyle factors on reproductive health, in particular, fertility, pregnancy complications, and reproductive cancers.

Kirsten K. Davison, MS, PhD; Associate Professor of Nutrition. Family and community determinants of, and preventive interventions for, childhood obesity; factors shaping adolescent girls' physical activity; theory development and implementation.

Wafaie W. Fawzi, MBBS, MPH, SM, DPH; Richard Saltonstall Professor of Population Sciences, and Professor of Nutrition, Epidemiology, and Global Health. Etiologies of infectious diseases including AIDS, TB, and malaria, with emphasis on nutritional causes; maternal, neonatal, and child health.

Edward L. Giovannucci, MD, MPH, SD; Professor of Nutrition and Epidemiology. Etiologies of cancer with emphasis on dietary causes, particularly for prostate and colorectal cancers; methodologies to measure dietary factors in epidemiologic studies.

Gökhan S. Hotamisligil, MD, PhD; James Stevens Simmons Professor of Genetics and Metabolism. Molecular basis of metabolic diseases; studies on regulatory pathways; signal transduction in mammalian cells; biology of fatty-acid binding proteins.

Contact Information

Colleen Bertrand, department program administrator, Department of Nutrition, 655 Huntington Avenue, Boston, MA 02115 USA
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Fax: 617-432-2435
Email: cbertran@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/departments/nutrition

Frank B. Hu, MD, MPH, PhD; Professor of Nutrition and Epidemiology. Nutritional and genetic epidemiology of obesity, diabetes, and cardiovascular disease.

David J. Hunter, MBBS, MPH, SD; Vincent L. Gregory Professor of Cancer Prevention and Dean for Academic Affairs. Genetic epidemiology; cancer epidemiology; international health.

Chih-Hao Lee, PhD; Associate Professor of Genetics and Complex Diseases. Energy metabolism regulated by nuclear receptors in immunity and metabolism.

Frank M. Sacks, MD; Professor of Cardiovascular Disease Prevention. Nutrition and risk factors for cardiovascular disease; clinical trials on macro- and micro-nutrients; human lipoprotein pathophysiology; effects of dietary fat and carbohydrates.

Stephanie A. Smith-Warner, MS, PhD; Associate Professor of Nutritional Epidemiology. Examination of dietary factors in relation to cancer risk.

Meir J. Stampfer, MD, MPH, DPH; Professor of Nutrition and Epidemiology. Influence of diet and lifestyle on health, particularly prostate cancer, other cancers, heart disease, and cognitive decline.

Marianne Wessling-Resnick, MS, PhD; Professor of Nutritional Biochemistry. Genetic disorders of iron metabolism at the molecular level and their implications in complex disease.

Secondary Appointments

(primary appointments at Harvard Medical School)

Christopher P. Duggan, MD, MPH; Associate Professor in the Department of Nutrition. Oral rehydration solutions for acute diarrhea; nutritional requirements of catabolic patients; micronutrient needs in infectious and critical illness.

Matthew W. Gillman, MD, SM; Professor in the Department of Nutrition. Relationship of diet to chronic conditions and diseases; early origins and early-life prevention of adult chronic diseases; disease prevention in defined populations.

Clifford W. Lo, MD, MPH, ScD; Associate Professor in the Department of Nutrition. Vitamin D and calcium nutrition; total parenteral nutrition.

David S. Ludwig, MD, PhD; Associate Professor in the Department of Nutrition. Endocrinology; pediatric obesity.

Lu Qi, MD, PhD; Assistant Professor in the Department of Nutrition. Genetic, biochemical, and lifestyle factors and cardiovascular disease in diabetes; gene-environment interactions and obesity and type-2 diabetes.

Eric B. Rimm, SD; Associate Professor in the Departments of Epidemiology and Nutrition. Nutrition; cardiovascular disease; genetics; biomarkers; obesity; chronic disease; epidemiology; cohort studies.

W. Allan Walker, MPH, MD, DPH; Professor in the Department of Nutrition. Nutrition and developmental gastroenterology; nutrition and mucosal immunology; gastrointestinal immunology; protective functions of breast milk.

Adjunct Faculty

Guy Crosby, PhD. Framingham State University.

Paul W. Franks, MSc, PhD. Lund University, Sweden.

Teresa T. Fung, MS, SD. Simmons College School of Health Studies.

Roland Kupka, SD. United Nations Children's Fund (UNICEF).

Sjúdur F. Olsen, MD, MS, DMSc, PhD. University of Aarhus, Denmark.

Karen E. Peterson, RD, SD. University of Michigan.

Rob M. Van Dam, MSc, PhD. National University of Singapore.

Eduardo Villamor, MD, MPH, DPH. University of Michigan.

Chair
Ichiro Kawachi, MD, PhD

Assistant Director of Academic Affairs
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Department of Society, Human Development, and Health

The mission of the department is to improve health throughout the human lifespan, including a special emphasis on children and adolescents. This mission is achieved through research to identify the social and behavioral determinants of health, the development and evaluation of interventions and policies leading to the improvement of population health, and the preparation of professionals and researchers who will fill leadership positions in advocacy and public service.

The department's educational mission is to train both scholars and practitioners: scholars whose research will illuminate basic social determinants of health and who will identify and test innovative social policy and service interventions; and practitioners who are skilled in designing, implementing, and evaluating health-enhancing interventions in action settings.

The department highlights three areas of interest:

Human development The department's emphasis on human development across the life course results from faculty research and interest in three domains: the physical, mental, and behavioral health and well-being of children and adolescents; basic developmental processes (including physical growth, nutrition, and psychological development); and growing attention to the influence of early-life conditions on long-term health and functioning. Coursework in this area of interest includes study of physical growth and development, principles of psychological and social development, and longitudinal research methods. Research conducted by faculty members involves longitudinal studies of both at-risk and community samples, emphasizing cumulative risk and protective influences across the lifespan and implications for prevention, early intervention, and treatment strategies.

Planned social change This area focuses on the application of theory in the design of intervention programs, as well as on research and evaluation methodology. The area includes work on interventions using randomized clinical trial designs and quasi-experimental approaches. Attention is given to the following design steps: problem diagnosis, assessment, formative research, program design, and evaluation. The social settings for interventions may be communities, workplaces, schools and colleges, or health care facilities. Populations of interest include those who are underserved, marginalized, and in special need. Intervention

LINDSAY SCHUBINER

SM student, Department of Society, Human Development, and Health

With her strong undergraduate background in the social sciences, Lindsay was attracted by the emphasis on the social determinants of health and the rigor in research and research methods that she found at HSPH.

Lindsay's main interests lie in the intersection between urban planning and public health. Her thesis is an exploratory analysis of the potential implications that a foreclosure crisis could have for health at the neighborhood level. Studies of this kind can add to the existing body of knowledge about the relationship among neighborhoods, housing instability, and both individual and community health.

In an independent study that dovetails with her thesis, Lindsay is using neighborhood data from Cleveland to determine whether foreclosure and vacancy rates correlate with domestic violence rates. She also has developed a participatory youth curriculum about employment and health with a Boston neighborhood health center. After graduation, she plans to pursue research or advocacy related to housing and health.

Learn more from Lindsay's video profile: http://hsph.me/student-profiles

strategies include educational interventions, community organizing and development, social marketing, communication, adult-learning approaches, and advocacy.

Social determinants of health The emphasis in this area is on the analysis of the major social conditions that affect the health of populations. Research stresses socioeconomic position, social and economic inequality, discrimination, social networks and support, social capital, work conditions, and psychological states. Seminars, tutorials, and courses enable students to explore a range of the health consequences of numerous social factors by studying varied subgroups at different times and places and under diverse and changing conditions. Students examine mechanisms and processes through which social factors exert their influence; they also investigate mechanisms that mediate or moderate relationships between social factors and health outcomes.

DEGREE PROGRAMS IN SOCIETY, HUMAN DEVELOPMENT, AND HEALTH

The department offers both 80-credit and 42.5-credit SM programs, a dual-degree master's program for nurses, and a doctoral program leading to the SD or DPH degree. Students in all degree programs may follow an interdisciplinary concentration in maternal and child health/children, youth, and families. Within the doctoral and 80-credit SM programs only, students may follow a concentration in health communication, an interdisciplinary concentration in obesity epidemiology and prevention, or an interdisciplinary concentration in women, gender, and health.

Program Requirements

All departmental degree requirements are in addition to the schoolwide degree requirements (see page 5).

SM in Society, Human Development, and Health, 80-credit program

Minimum prerequisites for entrance: Bachelor's degree or non-U.S. equivalent. Solid mathematics and writing skills and successful experience with coursework requiring critical reading and writing, drawing of inferences, and rigorous analysis are crucial. Applicants should have relevant postbaccalaureate work experience. Applications are encouraged from students who have a strong background in social sciences, natural sciences, or both; public health experience; and defined public health goals.

Program requirements: Students must earn at least 20 credits in departmental courses. They are not required to declare an area of interest within the department but are encouraged to take courses in all three areas. In addition to fulfilling departmental and practice core requirements, students are expected to delineate professional goals and to develop an area of expertise. They often focus on a subject area (such as AIDS; addiction; cardiovascular or cancer risk reduction; the health of children, adolescents, or women; or mental health) or a skill area (such as program design and evaluation, communication, policy analysis, or marketing). Students must complete a practicum, which consists of skill development in a practice setting, a seminar, and a final paper. All students should consult the department's Curriculum and Advising Guide for a list of required courses.

This professional SM program prepares students for a variety of positions in community, public, and private settings. These roles include the design, management, and evaluation of programs, particularly in health promotion and disease prevention, health communication, and those providing services to women, youth, and children. Other roles include work in research, public policy, and advocacy. The health communication concentration

is intended especially for those who seek positions as independent researchers and scholars; public health communicators in the private sector, state and federal agencies, international agencies, and nonprofit organizations; and public health leaders who require communication skills.

Recent graduates have taken such positions as evaluator in a violence prevention program for adolescents; associate director of public health and research at Georgetown University; assistant medical director of the Rhode Island Health Department; and intern in the Presidential Management Program, Office of the Budget for Health and Human Services; others have gone on to earn doctoral degrees.

SM in Society, Human Development, and Health, 42.5-credit program

Minimum prerequisites for entrance: Doctoral degree or master's degree, with significant professional experience in the social or behavioral sciences, health care, or a public health field. Applicants must be established practitioners or investigators.

Program requirements: At least 15 credits in departmental courses. Students should work closely with their advisers to develop a study plan to meet their particular academic and career goals.

This program prepares students for research careers in public and private agencies.

SM in Society, Human Development, and Health (HSPH 42.5-credit program) and SM in Primary Health Care Nursing (Simmons College)

Minimum prerequisites for entrance: Relevant bachelor's degree or non-U.S. equivalent and the equivalent of at least three years of relevant experience. Non-U.S. nurses must have equivalent licensure. Applicants must meet the general admission requirements of Simmons College as well as those of HSPH.

Program requirements: Students enroll in half-time study at both Simmons College and HSPH for two academic years and study at Simmons for one summer session. Students must earn 42.5 credits at HSPH, and they must maintain satisfactory academic progress at both HSPH and Simmons. See the department's Curriculum and Advising Guide for more detailed degree requirements.

This professional, dual-degree program is designed to prepare nurse practitioners for leadership roles in public and private institutions serving children and their families. Recent graduates have taken such positions as director of clinical services for the Family Planning Association of Maine and staff director for the World Health Organization Maternal Health and Safe Motherhood Program.

SD in Society, Human Development, and Health/DPH

Minimum prerequisites for entrance, SD program: Master's degree or non-U.S. equivalent. The department may accept a small number of students without a master's degree who have significant relevant work experience. Most students enter the doctoral program with a strong foundation in the social, behavioral, clinical, public health, or natural sciences and with a master's degree in a social science (such as sociology, psychology, economics, political science, public policy, and anthropology); clinical health (such as nursing and social work); public health (such as epidemiology and health education); or natural sciences (such as biology, physiology, and neurosciences).

Minimum prerequisites for entrance, DPH program: MPH degree (or in progress toward an MPH) and an advanced degree in a basic public health discipline.

Program requirements, SD and DPH: The doctoral program provides a common core education addressing issues of society, human development, and health while developing students' expertise in one of the department's three areas of interest (human development, planned social change, and the social determinants of health). Students must select an academic focus in one of these areas. All students should consult the department's Curriculum and Advising Guide for a listing of required courses.

RELATED OFFERINGS

Interdisciplinary concentration in maternal and child health/ children, youth, and families, see page 56.
Interdisciplinary concentration in obesity epidemiology and prevention, see page 57.
Interdisciplinary concentration in women, gender, and health, see page 56.
Interdisciplinary concentration in public health leadership, see page 57.
MPH concentration in health and social behavior, see page 52.

Current and recent doctoral students have undertaken dissertation research projects on the following topics: socioeconomic position, allergic disease, and cancer risk; cross-national comparisons of perinatal care technologies' effects on neonatal survival; poverty, policy, neighborhoods, and health; effectiveness of public policies for children with disabilities; social influences on health behaviors of college students with same-sex experience; depressive symptoms in postpartum women; gender inequality and health; measurement and social and physical contexts of physical activity; and cost-effectiveness of lead-poisoning prevention programs.

Graduates are pursuing careers in academia, government, and nonprofit organizations as leading researchers, teachers, policymakers, and program developers. Recent graduates have taken such positions as Epidemic Intelligence Service officer and chief of the lead-poisoning prevention branch at the federal Centers for Disease Control and Prevention; chair of an obstetrics department in Taiwan; postdoctoral fellow at the National Development and Research Institute in New York; research scientist at Harvard University; project officers in philanthropic foundations; and assistant professors at schools of public health and medical schools.

Note on Funding for All Programs

Limited funding is awarded on a competitive basis to qualified applicants in both master's and doctoral programs. Two training grants from the Maternal and Child Health Bureau support some students in the interdisciplinary concentration in maternal and child health/children, youth, and families. A fellowship for doctoral students is available in the area of cancer prevention, and some doctoral fellowships also may be available for underrepresented minorities. A limited number of university-wide presidential fellowships are awarded on a competitive basis to underrepresented minorities and to students from developing countries who are planning on public service or academic careers. Students receive funding in other areas through their own grant applications.

Contact Information

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For Reference

Schoolwide degree requirements are listed on page 5.

Detailed application requirements are listed on page 59.

DEPARTMENT FACULTY

Please note that some faculty members may be on leave during academic year 2011–12.

Department chair: Ichiro Kawachi, MD, PhD; Professor of Social Epidemiology. Social inequalities in health, especially related to income distribution; stress and cardiovascular disease; quality of life and healthy aging; tobacco control.

Lisa F. Berkman, MS, PhD; Thomas D. Cabot Professor of Public Policy and of Epidemiology. Social epidemiology; population health; epidemiology of aging.

Gregory N. Connolly, DMD, MPH; Professor of the Practice of Public Health. Impact of policies restricting smoking; structure and marketing practices of the tobacco industry; analysis of internal tobacco industry documents; tobacco product design and use.

Kirsten K. Davison, MS, PhD; Associate Professor of Nutrition. Family and community determinants of, and preventive interventions for, childhood obesity; factors shaping adolescent girls' physical activity; theory development and implementation.

Felton J. Earls, MD; Professor of Human Behavior and Development. Community-based participatory research; child and adolescent mental health; prevention of HIV/AIDS; prevention of violence and related behaviors.

Karen M. Emmons, MA, PhD; Professor of Society, Human Development, and Health, and Associate Dean for Research. Cancer disparities; community-based cancer prevention interventions; health communication.

Alan C. Geller, MPH, RN; Senior Lecturer on Society, Human Development, and Health. Cancer prevention; early detection and screening for cancer; melanoma; tobacco cessation; cancer disparities.

Stephen E. Gilman, SM, SD; Associate Professor of Society, Human Development, and Health. Social epidemiology of psychiatric disorders; health disparities and the life course.

Maria Glymour, SM, SD; Assistant Professor of Society, Human Development, and Health. Social determinants of health in aging; cognitive change in the elderly; socioeconomic and geographic determinants of stroke incidence and outcomes; causal inference in social epidemiology.

Steven L. Gortmaker, MS, PhD; Professor of the Practice of Health Sociology. Identifying modifiable risks for morbidity and mortality in the young, particularly those living in poverty and minority populations, and initiating and evaluating interventions to improve these outcomes.

Nancy Krieger, MS, PhD; Professor of Society, Human Development, and Health. Conceptual frameworks to understand, analyze, and improve population health and reduce health inequities; ecosocial theory of disease distribution; societal determinants of population health; methodological research on improving monitoring of health inequities.

Laura D. Kubzansky, MSc, MPH, PhD; Associate Professor of Society, Human Development, and Health. Psychosocial determinants of health over the life course; social inequality and health; resilience and health; biology of resilience.

Marie C. McCormick, MD, ScD; Sumner and Esther Feldberg Professor of Maternal and Child Health. Epidemiology of infant mortality and low birth weight; measurement of and factors associated with child health status, especially among premature infants; evaluation of MCH programs.

Beth E. Molnar, SM, SD; Associate Professor of Society, Human Development, and Health. Community-level prevention of child maltreatment; family and community violence and sequelae; social and psychiatric epidemiology; prevention of adolescent risk behaviors.

Cassandra Okechukwu, MSN, MPH, SD; Assistant Professor of Society, Human Development, and Health. Global tobacco control; research methods for community-based cancer prevention interventions; work-related health disparities; and health promotion in occupational settings.

Rima E. Rudd, MS, ScD; Senior Lecturer on Society, Human Development, and Health. Health literacy; pedagogy related to public health education; participatory research and program design; community-based public health program design and evaluation.

Jack P. Shonkoff, MD; Julius B. Richmond FAMRI Professor of Child Health and Development. Early-childhood policy; childhood roots of disparities in health and learning; development and translation of the science of health, learning, and behavior.

Glorian Sorensen, MPH, PhD; Professor of Society, Human Development, and Health. Cancer prevention and control; worksite and community intervention research; tobacco control; nutrition education.

S. V. Subramanian, MA, MPhil, PhD; Professor of Society, Human Development, and Health. Understanding the role of geographic, spatial, and institutional contexts (e.g., neighborhoods, schools, workplaces) in influencing population health.

Kasisomayajula Viswanath, MA, PhD; Associate Professor of Society, Human Development, and Health. Health communication; health disparities; risk communication; e-health; cancer prevention and control.

David R. Williams, MPH, MA, PhD; Florence Sprague Norman and Laura Smart Norman Professor of Public Health, and Professor of African and African American Studies in the Faculty of Arts and Sciences. Race and SES differences in health; racism and health; religion/spirituality and health; survey research methods.

Secondary Appointments

(primary appointments at Harvard Medical School)

S. Bryn Austin, SD; Associate Professor in the Department of Society, Human Development, and Health. Environmental influences on nutrition, physical activity, and eating disorders in adolescents; sexual orientation disparities in health.

Pamela J. Burke, RN, PhD, FNP, PNP; Assistant Professor in the Department of Society, Human Development, and Health. Adolescent pregnancy and parenting.

Barbara Gottlieb, MD, MPH; Associate Professor in the Department of Society, Human Development, and Health. Women's health; unintended pregnancy; depression; minority and community health; adolescent and school health.

Jennifer S. Haas, MD, SM; Associate Professor in the Department of Society, Human Development, and Health. Disparities in health and health status; the role of neighborhood characteristics on health behaviors and outcomes; prescription drug policy.

Ellice S. Lieberman, MD, MPH, DPH; Professor in the Department of Society, Human Development, and Health. Perinatal epidemiology; risk factors for adverse pregnancy outcomes; assessment of new technologies and care practices in obstetrics.

Charles A. Nelson, PhD; Professor in the Department of Society, Human Development, and Health. Developmental cognitive neuroscience; risk factors for atypical brain-behavioral development; effects of early experience.

Judith S. Palfrey, MD; Professor in the Department of Society, Human Development, and Health. Development of preschool children; interface of health and educational services for children.

Joan Y. Reede, MD, MPH, SM; Associate Professor in the Department of Society, Human Development, and Health. Biomedical manpower and academic/research career development; health services to and impact of health policy on minority and other populations.

Michael O. Rich, MD, MPH; Associate Professor in the Department of Society, Human Development, and Health. Children's health and communications media; the illness experience from the patient's perspective.

Ronald C. Samuels, MD, MPH; Assistant Professor in the Department of Society, Human Development, and Health. Improving data entry in immunization databases; using immunization databases to identify children not receiving immunizations.

Adjunct Faculty

Dolores Acevedo-Garcia, MPA, PhD. Northeastern University, Bouvé College of Health Sciences.

Jennifer D. Allen, SD. Boston College School of Nursing.

Mauricio Avendano, MPH, PhD. Erasmus University Medical Center, Department of Public Health, the Netherlands.

Elizabeth Barbeau, ScD. Healthrageous, Inc.

Mary Jean Brown, SM, SD. National Center for Environmental Health.

Michael L. Ganz, MS, MPhil, PhD. Abt Associates, Inc.

Roberta E. Goldman, MA, PhD. Brown University.

David T. Helm, MA, PhD. Children's Hospital Boston.

Daniel J. Kindlon, MS, PhD. Clinical Psychologist.

Lawrence C. Kleinman, MD, MPH. Quality Matters, Inc.

Karestan C. Koenen, MA, PhD. Columbia University Mailman School of Public Health.

Michael G. Marmot, MBBS, MPH, PhD. University of London, United Kingdom.

Karen E. Peterson, RD, SD. University of Michigan.

Nicolaas P. Pronk, PhD. Health Partners Research Foundation.

Jay G. Silverman, MS, PhD. University of California, San Diego.

Norma M. Swenson, MPH. Consultant.

Lisa Tieszen, MA. Beth Israel Deaconess Medical Center.

Deborah K. Walker, EdM, EdD. Abt Associates, Inc.

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Master of Public Health Program

HSPH offers the MPH degree, the most widely recognized professional credential for leadership in public health. The curriculum emphasizes active, student-directed learning, problem solving, and the acquisition of skills essential to the practice of public health.

PROGRAM OVERVIEW

The MPH is a two-semester, 42.5-credit program that may be pursued on a full- or part-time basis. It is organized around a core curriculum and seven career-oriented concentrations: clinical effectiveness, global health, health and social behavior, health care management and policy, law and public health, occupational and environmental health, and quantitative methods. Each concentration offers electives that allow students to explore in depth areas relevant to their personal career goals. Moreover, the concentrations enable students in the interdisciplinary MPH program to

INTERDISCIPLINARY PROGRAMS

VANESSA APEA, MBBS, MRCP, DFSRH, DIPGUM

MPH student, quantitative methods concentration

A medical doctor specializing in sexual health and HIV medicine, Vanessa was completing her advanced training at Barts and the London NHS Trust, a consortium of sexual health centers, when she decided to apply to HSPH. Vanessa chose an MPH in quantitative methods because she knew how to formulate research questions, but she needed a toolkit of statistical and research design skills to get documentable answers and then apply her findings. In her practicum, she worked on mother and child outcomes at a clinic set up in the aftermath of the Haitian earthquake.

She will return to Barts and the London NHS Trust after graduation in the position of consultant, pursuing her commitment to serve socioeconomically disadvantaged communities through outreach and treatment. The daughter of Ghanaian immigrants, Vanessa also has family and professional ties in Ghana. She will use her new skills in developing tailored interventions for HIV patients in London and in optimizing service delivery at an HIV clinic in Ghana.

Learn more from Vanessa's video profile: http://hsph.me/student-profiles

establish a link with one or more of the school's academic departments. There is a summer-only degree completion option within the clinical effectiveness and quantitative methods concentrations.

Coming from around the globe, MPH students bring a wide variety of backgrounds and experiences to the program. The majority of these students are health professionals, with a minimum of three or more years of work experience, who are preparing for advancement in their organizations or for transition into new fields.

Prerequisites for Entrance

Applicants ordinarily hold a doctoral degree or non-U.S. equivalent in medicine, dentistry, veterinary medicine, law, or other fields related to public health – for example, biology or other natural, behavioral, or social sciences. Individuals with a master's degree in nursing, social work, business administration, or a field closely related to public health and who have at least three years of health-related work experience also may be considered for admission to the program. Preference is given to applicants with clearly identified career goals relevant to the program and strong academic backgrounds. Those without the required professional degree or experience should consider an 80-credit SM program offered by one of the HSPH departments.

Dual Degrees

Students currently enrolled in U.S.-based MD, DO, DMD, or DDS programs (and students at Harvard Law School) who have a career interest in public health and/or preventive medicine also are eligible to apply for admission to the MPH program. Medical and dental students undertake the MPH program while on leave of absence between the third and fourth years of medical or dental school. They receive the MPH degree upon successful completion of both programs and conferral of the doctoral degree. The MPH program serves as a required academic year for residency training in general preventive medicine, aerospace medicine, or occupational and environmental medicine.

Students accepted to Harvard Law School may simultaneously pursue an MPH under Harvard's JD/MPH joint degree program. Prospective students should apply to the joint degree program either concurrently with their application to or during their first semester at Harvard Law School. HSPH coursework begins in the summer following the first year of law school and continues over the next two years.

Program Requirements

MPH students are required to complete a minimum of 42.5 course credits and fulfill core requirements in the fundamental public health disciplines, together with a course on the ethical basis of the practice of public health. All students must select a concentration in which they complete recommended and required courses. Additionally, all students must complete an MPH practicum, as well as a culminating experience, in accordance with the guidelines of the various concentrations. Students are encouraged to consult with faculty advisers to choose elective courses best suited to their needs. Requirements and concentration guidelines are available from the Office for Educational Programs.

Degree Completion Options

MPH candidates may complete the degree requirements on a full- or part-time basis, and they may change from one status to the other. Full-time students normally complete the program in two consecutive semesters (September through May). Part-time students fulfill the requirements for the degree in two or three years. Students may elect to begin their coursework in July by enrolling in the Summer Session for Public Health Studies; those interested in this option should contact the Office for Educational Programs for guidance.

A summer-only MPH program is available for students in two concentrations: quantitative methods and clinical effectiveness. The program can be completed by taking courses in three consecutive enrollments in the Summer Session for Public Health Studies; students in this program also may take courses during the HSPH WinterSession. Students wishing to apply for the summer-only MPH in quantitative methods or clinical effectiveness must observe the same admissions deadlines as all MPH degree applicants.

Concentration Descriptions

Clinical effectiveness Concerned with identifying the most appropriate, ethical, and cost-effective means of providing health care through prevention, early detection, or treatment, this concentration is designed to provide the analytic and quantitative training necessary to evaluate clinical practices. Major areas of professional interest include clinical epidemiology and biostatistics, cost-effectiveness analysis, medical decision analysis, health services research, quality improvement in health care, and measurement of health-related quality of life. The concentration is limited to clinicians enrolled initially in the Summer Program in Clinical Effectiveness.

Along with the broad perspective on general aspects of public health that the program offers, this training provides a basis for identifying the health policy implications and public health benefits of clinical investigations. The concentration prepares physicians for clinical research responsibilities and for leadership roles in evaluating and improving all aspects of health care delivery. Most graduates hold positions in academic medicine.

Global health This concentration explores the emerging professional and academic domain of global health, emphasizing the development of analytical and methodological skills to effectively engage and critically evaluate key challenges, policies, and processes as they affect the health of populations in a global context across national and sector boundaries. Students are exposed to a range of disciplines, methods, and approaches as they are relevant for addressing the multisectoral nature of public health challenges, including demography and epidemiology, the organization of health systems, the ethical basis of resource allocation, political economy, health economics and financing, health and human rights, and humanitarian studies. The concentration involves opportunities to build skills in areas of strategic planning, professional networking, crisis management, and development of policy initiatives in the context of both national health systems and broader international frameworks and institutions.

The program is intended to prepare health professionals with prior international health experience for leadership roles in global health at national and international levels and to effectively translate scientific knowledge into policies that affect public health. Graduates work in national ministries of health, intergovernmental organizations, donor aid agencies, NGOs, research and academic institutions, and the private sector.

Health and social behavior This concentration is devoted to the promotion of health and the prevention of disease, especially in more vulnerable populations. Coursework emphasizes strategies for needs assessment and establishment of health objectives, data collection and analysis, leadership skills, consultation, communication, advocacy, and policy formation in the public sector. Beyond the MPH core requirements, students are encouraged to develop expertise in a focus area geared to their professional interests. These areas include identifying and understanding the origins of health disparities, community assessment, and interventions for health promotion and disease prevention. Guidance is provided to develop more in-depth understanding of specific health problems and vulnerable groups.

This concentration prepares students to work in diverse spheres, including federal, state, and local government; advocacy groups; voluntary health organizations; and community-based primary care settings in the United States and other countries. Posts filled by graduates include state health director; medical director of programs for child, adolescent, and women's health; health policy analyst; and health educator. Other graduates have gone on to academic positions.

Health care management and policy In this concentration, students train for either a management or a policy focus. In addition to fulfilling the MPH core requirements, students select from clusters of courses to gain depth in their chosen focal area. Students who choose the management focus take courses providing practical management skills, such as accounting, finance, operations, marketing, information systems, quality improvement, management of people, and strategy determination. Students who select the policy focus take courses in health economics, political science, and applied policy in areas such as payment systems, insurance, mental health and substance abuse, community health, and health promotion and disease prevention.

The concentration prepares students for leadership positions in health care organizations that provide direct care (such as hospitals, group practices, and home health agencies), those that pay for and/or organize health care (such as governments, health insurers, and health maintenance organizations), and those that supply direct-care providers (such as pharmaceutical companies and biotechnology firms). Program graduates fill many roles – from consultants and staff analysts to middle-management and executive positions.

Law and public health This concentration introduces lawyers to the science of public health, provides them with the skills needed to analyze public health problems, and allows them to design a curriculum that will meet their particular interests. Beyond the MPH core requirements, which include law-related courses, students are encouraged to develop an area of interest by choosing elective courses in a specific field such as health care delivery or environmental health.

The concentration trains leaders in the field of public health law. Graduates are prepared for careers in a variety of settings, including health or environmental law work in a law firm, NGO, or in-house counsel's office; policy positions in local, state, and federal government; and posts in academia. The concentration is open only to individuals who hold a U.S. or foreign law degree or who are pursuing a law degree at Harvard Law School through the JD/MPH joint degree program.

Occupational and environmental health This concentration focuses on workplace and environmental hazards, the physiological and biomechanical aspects of work, the risks posed by the interaction of genetic and environmental factors, and a practical approach to solving health problems in various work and community settings. The concentration features three areas of interest: occupational/environmental medicine, occupational health, and environmental health.

The program is designed for physicians and other professionals who intend to practice occupational/environmental medicine or to hold responsible positions in occupational and/or environmental policy and management. The occupational/environmental medicine area fulfills the coursework requirements of the two-year Occupational and Environmental Medicine Residency. This area also is intended for other physicians who wish to satisfy the didactic requirements of the American Board of Preventive Medicine for certification in occupational and environmental medicine.

Quantitative methods This concentration, sponsored jointly by the Departments of Epidemiology and Biostatistics, provides students with the necessary quantitative and analytic skills to approach and solve problems in public health and clinical research and practice while providing a strong general foundation in public health. The concentration emphasizes study design, data analysis, and the application of quantitative methods within the context of epidemiology, biostatistics, decision sciences, demography, and program evaluation. The competency-based curriculum is designed to provide health professionals with the analytical and statistical knowledge and skills required for successful public health practice and research. It is appropriate for both midcareer health professionals and those in the early stages of their careers. The program prepares graduates to take on leadership roles in clinical and population-based health research in government, health care institutions, and private industry. In addition, it provides an excellent foundation for those interested in pursuing academic careers in the health sciences.

Contact Information

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For Reference

Schoolwide degree requirements are listed on page 5.

Detailed application requirements are listed on page 59.

RELATED OFFERINGS

Occupational and Environmental Medicine Residency, see page 15.
Summer Program in Clinical Effectiveness, see page 58.
Summer Session for Public Health Studies, see page 58.

Faculty Director of the PhD Program
Marianne Wessling-Resnick, MS, PhD
http://www.gsas harvard.edu/prospective_students/application_instructions_and_information.php.

Division of Biological Sciences

The Division of Biological Sciences is an umbrella organization encompassing the HSPH Departments of Environmental Health, Genetics and Complex Diseases, Immunology and Infectious Diseases, and Nutrition. In some of these departments, two doctoral degrees are offered: the PhD and the SD. The PhD programs generally center on laboratory-based investigation in the biological sciences, while the SD programs emphasize epidemiologic analysis, as described in more detail in the sections of this catalog devoted to the respective departments.

DEGREE PROGRAMS IN THE DIVISION

The PhD programs of the four participating departments are administered by the Division of Biological Sciences. The name of the degree is PhD in Biological Sciences in Public Health, with the name of each departmental specialty following in parentheses. Students wishing to study cellular and molecular biology or physiology as it pertains to major problems in public health should apply to the PhD Program in Biological Sciences in Public Health (BPH), which grants the PhD degree through the Harvard Graduate School of Arts and Sciences.

The participating HSPH departments offer PhD specialties in the following areas:

- **Environmental health** (molecular and integrative physiological sciences).
- **Genetics and complex diseases** (molecular mechanisms of adaptive responses to stress; molecular and cellular toxicology; radiobiology; nutritional biochemistry; genetic and molecular mechanisms of chronic diseases such as obesity, diabetes, and cancer).
- **Immunology and infectious diseases** (immunology and molecular biology of parasitic and other infections).
- **Nutrition** (biochemistry; cardiovascular biology).

Program Requirements

All program degree requirements are in addition to the school-wide degree requirements (see page 5).

PhD in Biological Sciences in Public Health

Minimum prerequisites for entrance: Minimum requirements include a bachelor's degree and undergraduate preparation in calculus, physics, biology, and chemistry, both physical and organic. To qualify for admission, applicants must demonstrate strong enthusiasm and ability for the vigorous pursuit of scientific knowledge for optimal human health. Applicants are required to take the Graduate Record Examination (GRE) General Test in time to meet the application deadline in early December.

Program requirements: The program offers a firm foundation in the basic biomedical sciences, as well as in epidemiology and biostatistics. It also features interdisciplinary training, as students take courses in several different departments to meet their individual requirements. During the first two years of study, all students complete a minimum of 20 credits in core areas (molecular

biology, cell biology, biochemistry, genetics, physiology, toxicology/cancer cell biology, and immunology/infectious diseases). Other requirements for the first two years include the following: courses in epidemiology, biostatistics, and the conduct of science; three ten-week laboratory rotations; and 7.5 credits in critical-reading courses. Elective courses taken during the first two years cover the principles of toxicology; introductory cancer biology; genetic toxicology; cell response to mutagens and carcinogens; human physiology; advanced respiratory physiology; advanced topics in physiology, immunology, cellular and molecular biology of parasites, and the science of human nutrition. At the end of the second year, students take a preliminary qualifying examination to assess their ability and preparation for an original, laboratory-based scientific investigation. Students must write and defend a dissertation, generally within five or six years of beginning the program.

All students enrolled in the program receive full tuition, health insurance, and stipend support for at least five years if they are making satisfactory progress toward the degree. Applicants are not required to complete the Statement of Financial Resources for Graduate Study application form or the Financial Aid Form in the application booklet provided to them.

Graduates ordinarily assume positions as faculty members and research scientists in graduate schools, medical schools, research institutes, or schools of public health. Career opportunities in the biological sciences as they apply to public health are expected to grow both in academia and in the biotechnology and pharmaceutical industries.

Contact Information

Web: http://bph.hsph.harvard.edu
Detailed contact information is provided on the website.

For Reference

Schoolwide degree requirements are listed on page 5.

Online application to the PhD program is required. Use the Harvard Graduate School of Arts and Sciences online application form, available at: http://www.gsas.harvard.edu/prospective_students/application_instructions_and_information.php.

Division of Policy Translation and Leadership Development

The Division of Policy Translation and Leadership Development was created in 2010 to strengthen the work of the school in translating knowledge gained from scientific research into effective actions and policies that improve the health of populations. The division has undertaken the development of the Harvard Health Forum, modeled on the John F. Kennedy Jr. Forum at the Harvard Kennedy School. The division works with faculty who see opportunities to translate their research into better public health programs and policies. It facilitates the collaboration of faculty and public officials on analyzing the effectiveness of public health programs and improving those programs with research results.

The division oversees HSPH efforts to develop more high-level training programs for ministers of health and other leaders who influence public health globally.

Contact Information

Miranda Daniloff-Mancusi, director of strategy and program development, Division of Policy Translation and Leadership Development, 677 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1318
Email: mdaniloff@hsph.harvard.edu

Interdisciplinary Concentration in Women, Gender, and Health

This interdisciplinary concentration is geared toward students who desire careers in research, teaching, and programs related to women, gender, and health. Addressing issues of women, gender, and health (WGH) requires the study of the health of women and girls – and men and boys – throughout the life course; gender, gender equality, and biology must be understood as important and interacting determinants of well-being and disease. Areas of study also include gender and gender inequality in relation to individuals' treatment by and participation in health and medical care systems; the physical, economic, and social conditions in which individuals live; and their ability to promote the health of their families, their communities, and themselves. Inherent in these studies is the protection of human rights as fundamental to health and the recognition of diversity and inequality among women – and men – in relation to race/ethnicity, nationality, class, sexuality, and age. As the concentration does not offer a degree, prospective students must apply to a degree program in one of the participating departments. Students must fulfill the requirements of the home department, which issues the degree, and the requirements of the concentration, which include core courses in women, gender, and health; gender analysis; and women's health.

Contact Information

WGH program office, Room 1202, 665 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-3690
Fax: 617-432-1084
Email: wgh@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/women-gender-and-health

Interdisciplinary Concentration in Epidemiology of Infectious Disease

Education and research on aspects of infectious disease occur in a number of HSPH departments, including the Departments of Biostatistics, Epidemiology, Global Health and Population, Health Policy and Management, and Immunology and Infectious Diseases. These departments participate in the interdisciplinary concentration in the epidemiology of infectious disease, which focuses on population studies incorporating both epidemiologic and laboratory methods. This concentration is intended to provide training for those students who desire careers in research and teaching in infectious disease. As the concentration is a non-degree program, prospective students must apply to a program in one of the participating departments, which will issue the degree. Upon matriculation students may then elect to participate in this concentration. Students are responsible for fulfilling the requirements of the academic program within the home department in addition to the requirements of the concentration. Students who complete the required 15 credits receive a letter of completion.

Contact Information

John Paulson, assistant director of graduate studies, Department of Epidemiology, 677 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1055
Fax: 617-566-7805
Email: jpaulson@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/departments/epidemiology

Interdisciplinary Concentration in Maternal and Child Health/Children, Youth, and Families

The goal of the concentration is to improve the health of children and their families through educating leaders in maternal and child health/children, youth, and families (MCH/CYF). This interdepartmental concentration is geared toward students who desire careers in public health programs for children and their families, and those interested in research and/or teaching in this area. The curriculum focuses on the health problems of the target population, programmatic and policy responses, appropriate research techniques, and specific leadership skills in courses in the four participating departments: Society, Human Development, and Health; Global Health and Population; Nutrition; and Epidemiology. The MCH/CYF concentration consists of four areas of study: human development and disparities in health, child rights and global health, physical growth and nutrition, and characterization of the health problems of children and their families. As the concentration does not offer a degree, prospective students must apply to a department-based degree program and must complete the requirements for both the academic program and the concentration. The number of required credits for the concentration ranges from 7.5 to 10, depending on the student's degree program.

Contact Information

Trish Lavoie, program administrator, Department of Society, Human Development, and Health, 677 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-0964
Fax: 617-432-3755
Email: tlavoie@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/mch-cyf-concentration

Interdisciplinary Concentration in Obesity Epidemiology and Prevention

This interdisciplinary concentration is designed for students interested in training in the theoretical, methodological, and applied knowledge and skills necessary to conduct obesity-related epidemiologic and prevention research. The concentration includes obesity epidemiology and prevention in international settings. Areas of training include assessment of obesity in individuals and populations; biological and social determinants of obesity; epidemiologic and prevention study designs; health and social consequences of obesity; worksite-, community-, and school-based interventions; gene-environment interactions; and global obesity epidemiology and prevention. As the concentration does not offer a degree, prospective students must apply to a degree program, which can be in any of three departments: Nutrition; Epidemiology; or Society, Human Development, and Health. Students must fulfill the requirements of the home department, which issues the degree, and the requirements of the concentration, which include core courses in nutritional and obesity epidemiology and obesity prevention. The concentration is limited to doctoral and two-year master of science students.

Contact Information

Obesity Epidemiology and Prevention Program Office, Department of Nutrition, 655 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1333
Fax: 617-432-2435
Web: http://www.hsph.harvard.edu/obesity-program/students/

Interdisciplinary Concentration in Public Health Leadership

The concentration was developed to improve the leadership skills of students to meet the public health challenges facing human society in the 21st century. This interdisciplinary concentration is geared toward students who desire careers in leading and implementing transformative public health initiatives. The curriculum focuses on theories, models, and skills that will enable students to enter or reenter the public health profession and assume positions of responsibility with confidence and authority. As the concentration does not offer a degree, prospective students apply to a degree program in one of the participating departments: Environmental Health; Global Health and Population; Health Policy and Management; Nutrition; and Society, Human Development, and Health. Students must fulfill the requirements of the home department, which issues the degree, and the requirements of the concentration which include the core courses in public health leadership. The concentration is limited to participating departments.

Contact Information

Email: CPHL@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/translation/center-for-public-health-leadership

Research Centers

HSPH has established a number of institutes and centers to advance research in areas of importance to public health. These efforts tend to be multidisciplinary in their approach, bringing together faculty members from several HSPH departments and in some cases from several faculties at Harvard University. Faculty affiliated with the centers offer courses in their fields of interest through the school's academic departments and often provide opportunities for student involvement in research. Schoolwide research groups currently include the Center for Decision Science, Center for Health Communication, HSPH AIDS Initiative, and Harvard Injury Control Research Center.

ACADEMIC SUMMER PROGRAMS

Summer Program in Clinical Effectiveness

The Summer Program in Clinical Effectiveness – affiliated with Brigham and Women's Hospital, Massachusetts General Hospital, and Harvard Medical School – is intended for physicians who have completed their residencies and wish to obtain the quantitative and analytical skills needed for careers in clinical research. Candidates must be fellows or faculty members and are usually sponsored by their clinical departments or divisions. Students attend an intensive seven-week, 15-credit summer program comprising courses in biostatistics, epidemiology, and health policy and management. Upon completion of the summer program, qualified participants who apply and are admitted to a degree program may apply these academic credits toward the requirements for either a master of public health (MPH) or a master of science (SM) degree.

HSPH offers two specifically relevant degree programs: the MPH with a concentration in clinical effectiveness and the SM in epidemiology with an area of interest in clinical epidemiology. Qualified participants may fulfill requirements for the summer-only SM in epidemiology by attending classes during a second summer period (and possibly a third) and by completing a supervised research project (5–12.5 credits). Qualified participants may fulfill requirements for the MPH in clinical effectiveness by attending classes during second and third summer periods and by completing a supervised practicum (2.5–7.5 credits).

Contact Information

Barbara Rosen, administrator, Program in Clinical Effectiveness, Division of General Internal Medicine and Primary Care, Brigham and Women's Hospital, 1620 Tremont Street, Boston, MA 02120 USA
Fax: 617-732-5344
Email: progclineffect@partners.org
Web: http://www.hsph.harvard.edu/academics/clinical-effectiveness

RELATED OFFERING
Clinical epidemiology area of interest, Department of Epidemiology, see page 20.

Summer Session for Public Health Studies

The Harvard Summer Session for Public Health Studies introduces students to the core areas of public health in two intensive sessions. Courses in the program help students develop the ability to define, assess, and evaluate the health needs of populations; to participate in the development of health policy; and to ensure the delivery of health services.

Students in the Summer Session attend one or two three-week sessions in July and August. Each course is 2.5 credits, and the maximum recommended course load is 5 credits (two courses) per session. Because the coursework is very intensive and fast paced, students registered for two courses in a session are advised not to have other work commitments.

The Summer Session is intended for health professionals in training or those who are considering a midcareer change into public health and feel the need to strengthen their skills. Participants include public health professionals, primary care practitioners, physicians engaged in the evaluation of health care delivery and management, physicians in training (including preventive medicine residents and medical students in an MD/MPH joint degree program), and candidates for the part-time MPH program. Students accepted for admission to an HSPH degree program may choose to begin their studies early by enrolling in the Summer Session; these students will have greater flexibility in course selection during the academic year. Other students may subsequently seek admission to an HSPH degree program. Students eligible for the MPH in the quantitative methods or clinical effectiveness concentration may apply for a summer-only MPH, which must be completed over three consecutive summers.

RELATED OFFERINGS
MPH concentrations in clinical effectiveness and in quantitative methods, see pages 52–53.

Contact Information

For Summer Session: Isabelle Bourdonne, Summer Programs, Harvard School of Public Health, Office for Educational Programs, 677 Huntington Avenue, Kresge G-4, Boston, MA 02115 USA
Phone: 617-432-0168
Fax: 617-432-2009
Email: summer@hsph.harvard.edu (specify Summer Session on subject line)
Web: http://www.hsph.harvard.edu/academics/public-health-studies

For summer-only MPH: Roberta Gianfortoni, assistant dean for professional education, Office for Educational Programs, 677 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-0090
Fax: 617-432-3365
Email: roberta@hsph.harvard.edu

ADMISSION AND ENROLLMENT

Admission to Degree Programs

The admissions information in this section pertains to applications for degree programs offered by the Harvard School of Public Health. Applicants should contact the Admissions Office or visit http://www.hsph.harvard.edu/admissions for complete instructions. Information on HSPH minimum entrance requirements can be found in the respective department/program sections of this catalog. Note that the application for PhD programs, offered under the auspices of the Harvard Graduate School of Arts and Sciences (GSAS), is different from that used by applicants to programs administered by HSPH; the application must be obtained directly from GSAS.

HSPH Application Deadlines

Applications may be submitted beginning on September 15, 2011.

December 15, 2011, is the deadline for complete applications for HSPH doctoral (SD and DPH), master of public health (MPH), and master of science (SM) programs except as explained below.

December 15 is also the deadline for applications to the SM in health care management programs in the priority admission cycle. Applicants are strongly encouraged to submit their applications by November 27, 2011, to allow time for all their credentials to arrive by the December 15 deadline.

February 15, 2012, is the deadline for completing applications to the SM in health care management program for review in a second cycle. Applicants should be aware that this degree program may fill to capacity during the priority admission cycle.

Participants in the Summer Clinical Effectiveness and Summer Session programs matriculating in the 2012 summer program and wishing to apply for degree candidacy must meet the application deadlines outlined above.

Applicants to the MPH program who wish to participate in the Occupational and Environmental Medicine Residency must apply by October 5, 2011.

Application Procedures and Requirements

Application to the Harvard School of Public Health is made through the centralized Schools of Public Health Application Service (SOPHAS). For more information about this process, please consult the HSPH admissions website (http://www.hsph.harvard.edu/admissions).

Required application materials consist of the following:

- A completed and signed application form, a résumé, and a statement of purpose written by the applicant. The statement should describe the applicant's academic and professional history, area of interest at HSPH, reasons for wanting to enroll in the degree program, and professional or academic career plans upon completion of the program. The SM in health care management, MPH, and JD/MPH programs have specific requirements for the statement of purpose. Please visit the admissions website for more information.
- Official transcripts from all colleges, graduate schools, and/or professional schools attended, whether or not the courses taken appear to be relevant to a degree in public health. Applicants are expected to have a distinguished undergraduate record, as well as excellent performance in any graduate work undertaken. Certified English translations must be submitted when applicable.
- Letters of recommendation from at least three people who are well acquainted with the applicant's academic work and/or professional experience (recommendation forms are provided in the SOPHAS application).
- Official scores of the Graduate Record Examination (GRE) General Test. While GRE scores are strongly preferred, some other tests may be substituted in circumstances specified in the application. The requirement for scores from a standardized test will not be waived on the basis of academic or professional background.

Tuition and Fees, July 2011–June 2012

Per-credit assessment (full-time, part-time, and special students and affiliates)	$ 910 per credit
Tuition for full-time 42.5-credit master's degree students	$38,675 per year
Tuition for full-time 80-credit master's degree students (40 credits per year required)	$36,400 per year
Tuition for nonresidential master of science in health care management (2010–12 cohort)	$64,500 total for two-year program
Tuition for full-time resident doctoral students	
(40 credits per year required) Full-time, years one and two	$36,400 per year
Full-time reduced, year three	$18,200 per year
Facilities fee, year four to thesis defense	$ 4,550 per year
Dissertation defense fee (final semester before graduation)	$ 2,008 final semester
Tuition for part-time resident doctoral students	
Part-time, years 1–4	$18,200 per year
Part-time, years 5 and 6	$ 9,100 per year
Facilities fee, year 7 to thesis defense	$ 4,550 per year
Dissertation defense fee (final semester before graduation)	$ 2,008 final semester
Tuition for nonresident doctoral students	$ 2,516 per year
Summer matriculation (2011) (includes HSPH summer courses, Summer Institute, clinical effectiveness, summer SM in epidemiology, and doctoral 5-credit research)	$ 910 per credit
Fees	
Registration fee (summer, spring, and fall)	$ 125 per semester
Late registration fee	$ 80
Leave of absence fee	$ 125 per semester
Health fees (see page 61)	
Academic records fee	$ 10 one-time fee

- Official scores of the Test of English as a Foreign Language (TOEFL), if applicable. Applicants (including those who have been U.S. citizens or permanent residents for less than one year) from countries where English is not the language of instruction must submit a score from the TOEFL. Those who have already taken the TOEFL may submit the score so long as it is not more than two years old. The International English Language Testing System (IELTS) exam will be accepted if the applicant's score is 7.0 or above.
- A nonrefundable application fee to SOPHAS (the amount will vary according to the number of schools designated to receive the application). HSPH does not charge an application fee.
- Applicants may apply to only one degree program and must satisfy the requirements of the department or program to which they are applying. Those applying to the JD/MPH joint degree program with Harvard Law School, the MD/MPH combined degree program with Harvard Medical School or another medical school, or the joint degree programs with Simmons College must satisfy the entrance requirements to both schools. Applicants to doctoral programs must demonstrate the ability to undertake original research. All prospective students must apply for either full- or part-time status. Most international students are eligible for full-time study only.

Admission is granted for the summer (for summer programs) or the fall semesters of a particular year (currently September 2012). Students unable to enroll at that time may request a deferral but may be required to reapply.

Application Review

Applicants are notified as soon as possible (in writing or electronically) about the status of their application. The decision of the Committee on Admissions and Degrees is final and is not subject to appeal.

For all HSPH programs the Committee on Admissions and Degrees considers the academic ability of applicants, the relevance of their previous education and experience, and their overall qualifications for graduate education in public health, including those qualities of character that reflect on an individual's suitability to be a public health professional. In decisions about admission and financial aid, HSPH does not discriminate against individuals on the basis of race, color, gender identity, sexual orientation, religion, age, national or ethnic origin, political beliefs, veteran status, or disability. The increased participation of underrepresented groups in public health practice and research is essential to the advancement of health, and the school is committed to expanding the diversity of its faculty, staff, and student body.

Matriculation

As a matter of policy, students may enroll in only one degree program at a time except for the following approved programs: MD/MPH, JD/MPH, and SM/MSN. Students scheduled to begin a degree program at HSPH in 2012 must show proof of degree conferral for all prior degrees that are required for admission

Health Fees, August 2011–July 2012

Student HUSHP Basic:		
HUSHP Fee	**Semester**	**Year**
Individual	$593	$1,186
Student HUSHP Supplemental:		
BCBS Hospital/Specialty	**Semester**	**Year**
Individual	$917	$1,834
Family Plan:		
HUSHP Basic and Supplemental	**Semester**	**Year**
Family (student plus spouse)	$3,761	$7,522
Family (student plus spouse and one child)	$4,937	$9,874

HUSHP Basic: HUSHP Fee provides comprehensive prepaid medical care, such as physical examinations, physician visits, laboratory tests, psychological counseling, and emergency services. The HUSHP Basic Fee is compulsory for all degree candidates and special students registered for more than 10 credits in a semester. Others may elect to waive HUSHP Basic coverage; this must be done by August 31 for fall and by February 28 for spring.

HUSHP Supplemental: BCBS Hospital/Specialty + Medco Prescription Drug Coverage plan provides extensive benefits for ambulatory and inpatient care not offered at UHS. HUSHP Supplemental coverage is compulsory for all nonimmigrant international students and for all other students who do not have comparable insurance. International students whose spouse and/or children also will be living in the United States are required to enroll in the family plan. U.S. students who have comparable insurance may elect to waive HUSHP Supplemental coverage; this must be done by August 31 for fall and by February 28 for spring.

Note: HUSHP Basic and Supplemental coverage extends from August 1 through July 31.

(qualifying degrees) to the respective HSPH degree program. If an incoming student has not completed the necessary qualifying degree(s) and has not submitted the degree conferral documentation to the Admissions Office by June 1, 2012, the student will need to request a deferral to begin studies at HSPH in 2013. In the case of extenuating circumstances, please contact the Admissions Office, without delay.

Tuition Deposit and Financial Certification

Applicants who are granted admission must submit a $500 tuition deposit when confirming acceptance of the offer of admission. This deposit, which is nonrefundable, will be applied toward the student's tuition and fees.

Accepted applicants who are not U.S. citizens or permanent residents must demonstrate that sufficient funds are available in U.S. currency to pay the costs (tuition, fees, and living expenses) of the full period of their academic program. International students supported by personal, family, or sponsor's funds not paid directly to Harvard University are required to deposit and retain adequate funds in a Boston-area bank in an account bearing the student's name. Students bringing their families to the United States must transfer and certify adequate funds for their support as well. (Please see page 62 for an estimate of living expenses in the Boston area.)

Admission to Nondegree Status

Affiliates

Harvard faculty and staff, employees of Harvard-affiliated hospitals, HSPH alumni, and certain other Boston-area public health professionals may register for a maximum of 10 credits per semester as nondegree affiliates of the school. Affiliates must register in person at the HSPH Registrar's Office.

Enrollment of affiliate students in specific courses is subject to the availability of space and permission of the instructor and the registrar; if classes fill to capacity, preference is given to HSPH degree candidates. Payment is on a per-credit basis and is due at the time of registration. Payment is not refundable unless the student is unable to take the desired course because it is filled. Affiliate students may neither audit courses nor cross-register at other Harvard schools or MIT.

Special Students

Individuals who do not fall into one of the categories listed above may apply for special student status. Applicants for special student status are subject to the same admission and registration requirements, deadlines, and procedures as applicants for degree candidacy. U.S. citizens and permanent residents may apply to the Admissions Office for full- or part-time special student status. As noted previously, foreign applicants are eligible for full-time status only. Admission to special student status is limited to one academic year. The deadline for applying for special student status is December 15, 2011.

Subsequent Application for Degree Candidacy

Affiliates and special students wishing to be admitted to degree candidacy must apply and will be considered on the same basis as other applicants for admission. At the time of their application, affiliates and special students who have taken courses at the school within the preceding five years may count up to 20 credits retroactively as part of the academic credit requirements.

Up to 20 credits of tuition previously paid to HSPH may be counted toward the school's tuition requirement for the degree program.

Financial Aid

Estimated Student Expenses

The budget information on page 62 is intended to provide students with an estimate of how much it will cost to spend nine months at HSPH. These figures are for the 2011–12 academic year; applicants for subsequent years should anticipate increases.

Student Expense Budget, 2011–12

		42.5-credit/year master's programs	Doctoral and other master's programs
Full-time tuition[1]		$38,675	$36,400
University Health Service Fee[2]	$ 593 per semester	$ 1,186	$ 1,186
BCBS health insurance fee[3]	$ 917 per semester	$ 1,834	$ 1,834
Registration fee	$ 125 per semester	$ 250	$ 250
Books/supplies	$ 688 per semester	$ 1,376	$ 1,376
Living allowances			
Rent/utilities	$1,140 per month	$10,260	$10,260
Food	$ 336 per month	$ 3,024	$ 3,024
Personal	$ 395 per month	$ 3,555	$ 3,555
Local transportation	$ 78 per month	$ 702	$ 702
SUBTOTAL[4]		**$60,862**	**$58,587**
Federal student loan fees[5]		$ 205	$ 205
TOTAL		**$61,067**	**$58,792**

1. For 2011–12, SD students are charged the flat tuition rate of $36,400 for the year. Tuition charges for all full- and part-time MPH and SM students remain per credit (based upon the number of credits for which a student is registered).
2. Part-time students taking 10 or fewer credits may waive the University Health Services Fee, if an online waiver form is completed by August 31 for fall, and by February 28 for spring. Students with a spouse and/or children may request family coverage (see page 61).
3. The BCBS supplemental health insurance fee can be waived upon proof of comparable coverage. Students with a spouse and/or children may request family coverage at a fee (see page 61).
4. International students in 42.5-credit master's programs must be able to demonstrate a nine-month level of support of $60,862 prior to the issuance of an appropriate visa. Other master's degree and doctoral candidates must demonstrate a twelve-month support level of at least $64,427. Students with additional family members must demonstrate the following levels of support:

	Student & spouse	Student & child	Student, spouse, & child*	Student, spouse, & 2 children*
Nine months (42.5-credit programs)	$69,841	$67,010	$73,383	$75,915
Twelve months (42.5-credit programs)	$77,180	$74,114	$81,112	$84,094
Twelve months (multiyear programs)	$74,905	$71,839	$78,837	$81,819

**For each additional child, add $1,350 for the nine-month and $1,800 for the twelve-month budget*

5. Loan fees are based on borrowing $33,000 Federal Direct Loans, available to U.S. citizens and permanent residents.

For more information on international and domestic loans, please see the Student Financial Services website: http://www.hsph.harvard.edu/administrative-offices/student-financial-services/.

Matriculation in Summer Programs

Tuition for the Clinical Effectiveness Program and the Summer Session for Public Health Studies in 2011 is $910 per credit. HSPH offers a special program in English communication in advance of the regular fall orientation for entering students; tuition for the Professional Communication Seminar is $850 for summer 2011. Living expenses, including rent, are about $1,922 a month.

Sources of Financial Aid

The Office of Student Financial Services and academic departments make every effort to assist students in finding resources to finance their education at HSPH. It should be noted that the school's financial aid budget is extremely limited. Students are urged to investigate all sources of support, including employers, government agencies, and civil and religious organizations.

Financial aid is available in the form of grants and scholarships, federal student loans, and work programs, as follows:

Grants and scholarships The Office of Student Financial Services and some academic departments may have grants or departmental scholarships that cover partial or full tuition; some grants also provide a stipend. Eligibility is generally based on career goals, academic merit, experience, and U.S. citizenship or permanent residency. Please contact the department to which you are applying for additional information.

The university offers a number of restricted scholarships to students who meet specific criteria. Please refer to the HSPH financial aid application for more information. An HSPH application for financial aid is required.

Federal student loans The Office of Student Financial Services administers the Federal Direct Stafford and GradPLUS Loan and Federal Perkins Loan programs. The maximum amount a student may receive under the Direct Stafford Loan program is $33,000 per academic year. Students may supplement their aid by applying for the Direct GradPLUS Loan for an amount up to their cost of attendance minus all other financial aid received. Students with extreme financial need also may be eligible for a Federal Perkins loan of up to $8,000. To apply for these loan programs, a student must:

- Be a U.S. citizen or eligible nonresident.
- Not be in default on a prior federal loan or owe a refund on a federal student grant.
- Be enrolled at least half-time (10 or more credits per semester).
- Complete the financial aid application process.

Work programs Some students may obtain part-time employment as research or teaching assistants in their academic departments. Additionally, the school participates in the Federal Work-Study Program, which subsidizes between 60 percent and 70 percent of the on- or off-campus employer's costs. Eligibility for this program is the same as for federal student loans.

Please refer to the student financial services website for additional and updated information about loan and work programs.

Registration

Students receive course descriptions and information about course meeting times, registration procedures and requirements, course load requirements, and payment of tuition and fees prior to registration. Every new resident degree candidate is expected to check in, in person, on August 28, 2011, for the 2011–12 academic year.

Cross-Registration

HSPH students may enroll in courses offered by the other Harvard faculties, MIT, and the Fletcher School of Law and Diplomacy at Tufts University. Students intending to cross-register should be aware that registration deadlines vary from school to school; these students must conform to the registration requirements of the school into which they are cross-registering as well as those of HSPH.

Harvard University maintains an online catalog of all courses offered at the university. This catalog is searchable by school, topic, time, and instructor. Also listed at this site are relevant, school-specific cross-registration policies and credit equivalencies. The address for the site is the following: http://www.hsph.harvard.edu/administrative-offices/registrar/cross-registration/.

Contact Information

HSPH Admissions Office, 158 Longwood Avenue, Boston, MA 02115 USA
Phone: 617-432-1031
Fax: 617-432-7080
Email: admissions@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/admissions

For financial aid: HSPH Office of Student Financial Services, 708 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1867
Fax: 617-432-5431
Email: osfs@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/administrative-offices/student-financial-services

For registration, billing procedures, admission to affiliate status, or policies regarding cross-registration: HSPH Registrar's Office, 677 Huntington Avenue, Boston, MA 02115 USA
Fax: 617-432-2009
Email: registra@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/administrative-offices/registrar

For student health insurance: Student Insurance Office, Harvard University Health Services, 75 Mt. Auburn Street, Cambridge, MA 02138 USA
Phone: 617-495-2008
Fax: 617-496-6125
Web: http://www.uhs.harvard.edu/insurance/students.aspx

For Reference

The HSPH application form (for SM, MPH, SD, and DPH programs) is available at http://www.sophas.org.

The Harvard Graduate School of Arts and Sciences online application form (for the PhD program in the Division of Biological Sciences) is available at http://www.gsas.harvard.edu/prospective_students/application_instructions_and_information.php.

Boston, Massachusetts

The Harvard School of Public Health is located in Boston, Massachusetts, an important center of American history, culture, commerce, and education. Boston is New England's largest city and one of America's oldest. A wealth of historical buildings and sites evokes the city's colonial past while providing a striking contrast to the skyscrapers of the business district. The Greater Boston area is home to more than one hundred colleges and universities and many renowned teaching and research hospitals.

The area hosts major art museums, museums devoted to science and children, the famous Boston Symphony Orchestra and Boston Pops, several professional theater companies, the Boston Ballet, and a number of professional sports teams. The city also offers elegant shopping and diverse dining, from casual ethnic restaurants to haute cuisine. Compact in scale, Boston invites walking but furnishes extensive public transportation.

The proximity of Cape Cod and Maine beaches, the mountains of Vermont and New Hampshire, and the charming villages of New England add to the appeal of Boston, one of America's most desirable places to live and study.

Harvard University

Founded in 1636, Harvard University is the oldest institution of higher learning in the United States. It has educated seven presidents of the United States, and its faculty has produced more than forty Nobel laureates. Today Harvard has an enrollment of more than 21,000 degree candidates. Including HSPH, the university has ten graduate and professional schools. Its ninety individual collections constitute the largest academic library in the world. Ten science and art museums further enrich the quality of intellectual life.

The university has campuses in both Cambridge and Boston.

Resources and Services for HSPH Students

The school's main buildings for research, teaching, and administration are located in the heart of Boston's hospital district and Harvard University's Longwood campus. The facilities adjoin those of Harvard's Medical School, School of Dental Medicine, and Francis A. Countway Library of Medicine and are near Children's Hospital Boston, Beth Israel Deaconess Hospital, Brigham and Women's Hospital, and other Harvard-affiliated hospitals. The school is within walking distance of many cultural institutions, such as Boston's Museum of Fine Arts, and public transportation is readily available to other parts of Boston and to Cambridge, where students may cross-register for courses at other Harvard schools and at MIT. A shuttle bus runs between the Longwood campus and Harvard Yard in Cambridge.

Francis A. Countway Library of Medicine

The Countway Library is the principal provider of library services to the school and is open every day (except for holidays) for work and study. One of the largest medical libraries in the world, the Countway houses over 630,000 bound volumes, 3,500 current biomedical journal titles, and 10,000 noncurrent titles. The library's website provides access to additional full-text journals in the biosciences and medicine and to many electronic databases. The Countway also owns an extensive collection of historical materials dating from the fifteenth century. HSPH students have borrowing privileges throughout the Harvard University library system. The Boston Public Library, MIT libraries, and other area libraries add to the total book and periodical resources available.

Instructional Computing Facility

The HSPH Instructional Computing Facility is dedicated to serving the coursework and research computing needs of the school's students and faculty. Resources include over 200 personal computers, laser printers, a scanner, and a high-performance research computing cluster; a wide array of software, including statistical packages, programming languages, analytical programs, and word-processing packages; and services such as antivirus software, email, wireless Internet connectivity, user assistance, short courses, and computer accounts for funded research. Many academic departments also provide computing resources for their students. Additional services – such as computer classes, user groups, technical support, and purchase of discounted hardware and software – are available through the offices of Harvard's University Information System.

Office for Student Affairs

The Office for Student Affairs (OSA) provides a variety of services for students and offers educational, social, cultural, and academic programs to support and enrich the student experience at HSPH. Staff members are available to respond to the needs of individual students as they deal with the many demands of their academic and personal lives. The staff helps students and their families who have questions about living in Boston and the United States, and also assists all students, both domestic and international, in adjusting to life here. Through a variety of programs the office

works to sustain a sense of community for students across the school. OSA sponsors noncredit academic support seminars on topics such as time management and can refer students to other sources of academic and personal assistance. In addition, OSA staff members coordinate orientation and commencement activities as well as social and cultural programming throughout the year. The office works closely with HSPH Student Government and other student groups to support programs and address collective concerns, such as HSPH Student Government's Global Chat seminar series, which features experts from around the world, including HSPH students, who share their experiences in

an informal setting. OSA also oversees the assignment and leasing processes for Shattuck International House and provides assistance to students with disabilities.

Student housing The Henry Lee Shattuck International House, available to both domestic and international students, is operated by the school on a nonprofit basis for its full-time students and their families. In addition to providing living quarters, the facility offers a supportive environment; students serving as resident community advisers help organize house activities and provide assistance. Located within a ten-minute walk of the school, the apartment complex consists of three buildings with seventy furnished one-bedroom and two-bedroom apartments that accommodate single students, roommates, and families. A number of apartments are accessible to those with disabilities. All apartments have private kitchens and baths, free Internet and email access via a data link to the school, and 24-hour security. Shared facilities include a computer room with a printer and copy machine, a library/reading room, an exercise room, a function room, a children's playroom, a laundry room, an indoor bicycle storage area, a piano room, a TV room with satellite TV and DVD, a recycling area, and an outdoor playground. Harvard University Housing also offers a wide range of housing options in both Cambridge and Boston.

Students with disabilities The Office for Student Affairs can provide students with documented disabilities a range of services, including interpreters, scribes, class notes, arrangements for accommodations and transportation, and other services as appropriate. For more information, contact the director for student affairs, see the Office for Student Affairs website under Support Services, and see the HSPH Student Handbook under "Disabilities, Services for Students with."

Career Services Office

The Career Services Office offers career counseling, job search resources, and networking opportunities to help students and alumni succeed in finding challenging and rewarding positions. The office invites numerous organizations to campus to present information sessions and to participate in four Career Fairs during the academic year. Organizations are encouraged to post jobs, internships, and fellowships and to review our electronic résumé/CV books for potential candidates. The Career Services Office team conducts workshops on résumé/CV and cover letter writing, job search strategies, and interviewing and negotiating skills. The team also organizes panel discussions featuring public health professionals, including HSPH alumni. Alumni career coaches are available to assist students with their job search and career planning. Students and alumni have access to current online job postings and to fellowship and internship opportunities. The Career Services Office offers comprehensive online career preparation resources and a library containing job listings, resource directories, and other career-related information. Additional resources include an interactive site to practice for job interviews and another online resource to develop interviewing skills. Students have the opportunity to network with graduates from other Harvard professional schools through the Crimson Compass, an online database of university-wide alumni.

Office for Alumni Affairs

The Office for Alumni Affairs acts as a liaison among 11,500 HSPH alumni and HSPH faculty, students, and administrators. It also develops and implements programs to build the alumni network and serves as a catalyst for connecting students, alumni, faculty, and outside constituencies on local, regional, and international levels.

The Office for Alumni Affairs works closely with the Offices for Career Services, Student Services, and Educational Programs, as well as with individual academic departments, to provide input into curricula, locate and facilitate practice placements, connect students with alumni mentors, and act as a resource for possible career opportunities. The office also works with the HSPH Alumni Association and the Alumni Council, the association's elected representative body, to organize educational and networking events in the United States and abroad. In addition to maintaining active social networking groups, the office launched an online directory communications platform in summer 2011 to help facilitate connections among HSPH students, faculty, and alumni.

Office of Diversity

The HSPH Office of Diversity supports activities that increase diversity and promote cultural competence among members of

the HSPH community. Its student ambassador program helps to connect students of color with other students, faculty, and staff. The office assists with recruitment initiatives and hosts or cosponsors cross-cultural educational activities and events, such as unity receptions, speaker seminars, and Yerby diversity lectures. In addition, the office participates in activities that represent the school's diversity agenda within HSPH, the university, and nationally. The office is also an informal gathering place for students, staff, and other members of the HSPH community.

Student Organizations

The HSPH Student Government includes elected and appointed representatives from each department, the MPH program, and the Division of Biological Sciences. It meets regularly to discuss issues and plan activities related to student life at HSPH. The organization also provides a mechanism for working with members of the school's faculty and administration on school-wide issues, sponsoring seminars and other educational programs, organizing social activities, and arranging for student representation on several of the school's faculty committees. The Student Government frequently sponsors or cosponsors collaborative activities, such as neighborhood cleanups, with the school and the neighboring community.

Numerous student organizations at HSPH are geared toward the interests of specific constituencies; these include the Spanish Speaking Committee; the Asian Club; the Climate and Health Forum; the Health in Practice Student Organization; the Lesbian, Gay, Bisexual, and Transgender Association; the Jewish Students Association; the Muslim Student Group; the Christian Fellowship; the Health Policy Forum; the Public Health and Technology Group; and the Soccer Club. New groups can be formed if a currently existing group does not provide opportunities for students in a specific area.

Harvard International Office

During the 2010–11 academic year, about 35 percent of HSPH students came from outside the United States. The experiences that international students bring to the school lend an important dimension to the academic programs and add to the richness of the environment. International students organize many cultural events at the school.

In addition to the programs provided by the Office for Student Affairs, the Harvard International Office (HIO), located on the Cambridge campus, offers a variety of services to students from abroad, including orientations and newsletters. One program, the HIO Host Program, matches students with a person or family who will welcome them and ease their transition to the United States. An international student adviser from the Harvard International Office holds biweekly office hours at HSPH to assist students with visa matters and to advise them on immigration regulations and other issues.

Contact Information

For student services: Stanley Hudson, associate dean for student services, 677 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-4703
Fax: 617-432-2009

For student affairs or students with disabilities: Andy Eisenmann, director for student affairs, 677 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1036
Fax: 617-432-3879
Email: aeisenma@hsph.harvard.edu
Web: http://www.hsph.harvard.edu/administrative-offices/student-affairs

For Shattuck House and other housing resources: http://www.hsph.harvard.edu/student-life/housing

For Harvard University Housing: http://huhousing.harvard.edu/HarvardUniversityHousing/index.aspx

For career services: Peter Crudele, director of career services, 677 Huntington Avenue, Boston, MA 02115 USA
Phone: 617-432-1034
Fax: 617-432-3879
Web: http://www.hsph.harvard.edu/administrative-offices/career-services

For the Office of Diversity: Dale Trevino, director of diversity programs, 33 Wigglesworth Street, Boston, MA 02120 USA
Phone: 617-384-5411
Email: dtrevino@hsph.harvard.edu

For services offered by the Harvard University International Office: Maria Hernandez, adviser to foreign students and scholars, Harvard International Office, 1350 Massachusetts Avenue, Cambridge, MA 02138 USA
Phone: 617-495-2789
Fax: 617-495-4088
Web: http://www.hio.harvard.edu/abouthio/locationandhours/offsiteofficehours

For information about local child care centers: Office of Work/Life Resources.
Phone: 617-495-4100

For information on services, resources, and programs for students and their families: work/life liaison.
Phone: 617-432-7448

Child Care Facilities and Work/Life Resources

A number of child care facilities are located near the Longwood and Cambridge campuses. Referrals and information are provided by the Harvard University Office of Work and Family. Arrangements should be made as early as possible, as facilities are quickly filled. The HSPH work/life liaison can provide some additional information on university- and school-sponsored support services and resources for students and their families.

Academic Officers of the Harvard School of Public Health

Julio Frenk, MD, MPH, MA, PhD, Dean of the Faculty of Public Health

David J. Hunter, MB, BS, MPH, SD, Dean for Academic Affairs

Michael J. Grusby, PhD, Senior Associate Dean for Academic Affairs

Robert J. Blendon, ScD, Senior Associate Dean for Policy Translation and Leadership Development

Bernita L. Anderson, MA, Associate Dean for Faculty Affairs

Karen M. Emmons, MA, PhD, Associate Dean for Research

Stanley G. Hudson, MA, MBA, Associate Dean for Student Services

Nancy M. Kane, MBA, DBA, Associate Dean for Educational Programs

Ian Lapp, PhD, Associate Dean for Strategic Educational Initiatives

David A. Shore, PhD, Associate Dean for Continuing Professional Education

Nancy Turnbull, MBA, Associate Dean for Educational Programs

Michelle Bell, EdD, Assistant Dean for Educational Programs

Roberta Gianfortoni, MA, Assistant Dean for Professional Education

Jim Smith, BS, Assistant Dean for Alumni Affairs

Delia Yi-Dan Wolf, MD, JD, Assistant Dean for Regulatory Affairs

Online Resources

A wealth of HSPH information can be accessed at http://www.hsph.harvard.edu. This site includes updated course, faculty, and educational information and school news. Information about Harvard's other faculties can be found at http://www.harvard.edu.

HSPH Catalog, 2011–12

Every effort is made to ensure the information contained in this catalog is accurate at the time of publication. However, the Harvard School of Public Health reserves the right to make changes without notice in tuition and fees, admission and degree requirements, courses of instruction, faculty, and other information contained herein. These changes will govern all students, including those who matriculated before the changes occurred.

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Nondiscrimination Policy

As a matter of policy, law, and commitment, the Harvard School of Public Health does not discriminate against any person on the basis of race, color, sexual orientation, gender identity, religion, age, national or ethnic origin, political beliefs, veteran status, or disability in admission to, access to, treatment in, or employment in its programs and activities. The following person has been designated to handle inquiries about nondiscrimination programs: Linda Picard, senior director of human resources, Office of Human Resources, 90 Smith Street, Boston, MA 02115. Inquiries about the application of nondiscrimination policies concerning race, color, national origin, age, sex, or disability also may be referred to the Regional Director, Office for Civil Rights, U.S. Department of Health and Human Services, J. W. McCormack POCH, Room 222, Post Office Square, Boston, MA 02109.

Disabilities

The university, in accordance with its obligations under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, does not discriminate against qualified individuals with disabilities in admission or access to programs and activities. The Office for Student Affairs assists all students with learning, manual, mobility, hearing, visual, and other disabilities.

For more information, please contact the director for student affairs and/or see the support services section of the Office for Student Affairs website, as well as the HSPH Student Handbook.

Religious Holidays

According to Chapter 151c, Section 2B, of the General Laws of Massachusetts, any student in an educational or vocational training institution, other than a religious or denominational training institution, who is unable, because of his or her religious beliefs, to attend classes or to participate in any examination, study, or work requirement on a particular day shall be excused from any such examination or requirement that he or she may have missed because of such absence on any particular day, provided that such makeup examination or work shall not create an unreasonable burden on the school. No fees of any kind shall be charged by the institution for making such opportunity available to the student, and no adverse or prejudicial effects shall result to any student for availing himself or herself of these provisions.

Campus Security

In compliance with the Student Right-to-Know and Campus Security Act of 1990, the Harvard University Police Department publishes an annual security booklet entitled *Playing It Safe*. The booklet describes Harvard's security policies, provides statistical information on the occurrence of crime on campus, and outlines some of the counseling programs the university offers. Students may obtain a copy of this booklet from the HSPH Admissions Office, 158 Longwood Avenue, Boston, MA 02115 (phone: 617-432-1031; web: http://www.hupd.harvard.edu/playing_it_safe.php).

Voter Registration

Massachusetts state law, as set forth in Chapter 51, Section 42E (Section 17 of Chapter 475 of the Acts of 1993), requires educational institutions to make available affidavits of voter registration. Eligible students may register to vote at registration, and mail-in registration affidavits are available from the Registrar's Office. Students from other states who desire to vote in a state other than Massachusetts may use the federal mail-in affidavit of voter registration or a mail-in form supplied by the state. These students must contact the appropriate state election official to receive the state form or may contact the Massachusetts Elections Division, Room 1705, McCormack Building, One Ashburton Place, Boston, MA 02108, for a federal form.

Accreditation

The Harvard School of Public Health is accredited by the Council on Education for Public Health.

Faculty Index

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